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The impact of public health workers' strikes on school health programs management in Chuka South Sub-County, Kenya

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Abstract

Abstract School immunization programs are organized public health initiatives designed to protect school-going children from vaccine-preventable diseases, by providing routine vaccinations in school settings. Immunization against common childhood diseases is an important strategy as it is critical for reducing the global child morbidity and mortality. The programs are normally a partnership between public health and education systems, and they often include a combination of routine vaccinations, catch-up vaccinations, and vaccinations in response to outbreaks. However, frequent public health workers' strikes have continued to disrupt the management of these preventive services, particularly in primary schools in rural areas. The study investigated the impact of public health workers' strikes on the management of school immunization programs in preventing infectious diseases and reducing risk factors among primary school going children in Chuka South Sub-County, Tharaka Nithi County, Kenya. The study employed both quantitative and qualitative research methods to gather data. The population for the study was 600 subjects, comprising 250 health workers, 200 teachers and 150 head teachers. The sample size for the study was 240 respondents, comprising 100 public health workers, 60 teachers and 80 head teachers. Findings illustrated that public health workers strike do not significantly affect the management of the school immunization and disease prevention programs in public primary schools in Chuka South Sub-County. The study recommended advocacy for policies that designate immunization as one of the health services in schools to

manage any emerging cases during health workers strike, while addressing workers' grievances through dialogue.

Key terms: Immunization, school immunization programs, public health workers, school health programs, management.

1.0INTRODUCTION

1.1 Background of the Study

School health programs are comprehensive initiatives within educational institutions aimed at promoting and safeguarding the health and well-being of learners (Abdul, Adeghe, Adegoke, 2024). Primary school health programs (SHPs) serve as a vital pillar for universal health coverage, providing essential services such as immunizations, nutritional monitoring, and hygiene education to school-going children (Melizza et al., 2025). School health programs are integral to fostering a healthy and conducive learning environment for learners (Tusha, Bulut and Al-Hendawi, 2024). School health programs such as immunization, deworming, growth monitoring among others are essential components of educational systems worldwide, aiming to promote and maintain the health and learners well-being (Adigun & Odeleye, 2025). In many developing regions, particularly in sub-Saharan Africa, these programs are the primary point of healthcare access for children from low-income families. In West Africa, countries like Nigeria have initiated significant immunization campaigns to combat prevalent diseases. A case in point was Nigeria, bearing a substantial malaria burden, launched a vaccination campaign targeting young children to reduce severe illnesses and fatalities associated with the disease (Prince-Edward, 2025). The initiative represented a monumental step towards malaria elimination in the country. Similarly, Sierra Leone had embarked on preventive Ebola vaccination campaigns, focusing on healthcare workers and high-risk populations. Such proactive approaches aimed to prevent future outbreaks by building immunity among those most vulnerable (Idriss, 2025).

However, the reliability of these services is increasingly threatened by labor unrest within the public health sector (Mills, 2022). When essential services such as immunization, deworming and disease management were interrupted, schools struggled to maintain a healthy learning environment, increasing the risk of preventable illnesses among learners (Gouge et al., 2023). Public health worker strikes—often driven by disputes over remuneration and working conditions—have become a recurrent feature of global health systems. While existing literature has extensively documented the impact of such strikes on hospital admissions and maternal mortality (Wambua et al., 2022), there is a significant research gap regarding how these disruptions cascade into school-based health initiatives. Specifically, the administrative and managerial challenges faced by school administrators during health worker strikes remain under-explored.

This paper sought to examine the extent to which frequent public health workers' strikes impact the effective management of school- based immunization, in regions like Chuka South Sub-County within Tharaka Nithi County, where the vulnerability of school-aged children to vaccine-preventable diseases is increasingly exacerbated by frequent interruptions in the delivery of routine immunizations.

1.2 Statement of the Problem

Despite the established framework of the national school health policy in Kenya, the management and execution of school-based immunization programs in public primary schools within Chuka South Sub County are severely compromised by frequent public health workers’ strikes. School immunization campaigns rely entirely on a seamless multi-sectoral collaboration between the ministry of education and the ministry of health. Public health workers are indispensable to this architecture; they are solely

responsible for transporting vaccines, maintaining strict cold chain logistics to prevent vaccine spoilage, administering the injections and managing adverse events following immunization.

When health care workers down their tools, this entire management structure collapses. The immediate problem is that immunization schedules are abruptly altered, leading to accumulation of unimmunized cohorts, missed critical booster dosses and a sharp decline in sub county immunization coverage. Furthermore, public primary schools lack the technical capacity, specialized personnel and cold chain infrastructures to independently sustain or salvage those vaccine campaigns during industrial actions. Consequently, school administrators are left with unmanaged immunization backlogs and zero technical guidance on default tracing. If left unaddressed, this management failure threatens to reverse gains made against vaccine preventable diseases, creating localized immunity gaps that expose primary school pupils in Chuka South Sub County to preventable outbreaks. This study, therefore, sought to investigate the explicit impact of public health workers strikes on the management of those vital school immunization programs.

1.3Objectives of the Study

General Objective

To assess the impact of public health workers' strikes on the management of school-based immunization programmes in public primary schools in Chuka South Sub-County, Tharaka Nithi County, Kenya.

Specific Objectives

The Study sought to;

i. To examine how public health workers' strikes affect the planning and implementation of school-based immunization programmes in public primary schools in Chuka South Sub-County.

ii. To determine the challenges faced by school administrators in managing school-based immunization programmes during periods of public health workers' strikes.

1.4Research Questions

The study was guided by the following research questions;

i. How do public health workers' strikes affect the planning and implementation of school-based immunization programmes in public primary schools in Chuka South Sub-County?

ii. What challenges do school administrators face in managing school-based immunization programmes during periods of public health workers' strikes?

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

This study was anchored on the Health Systems Theory and the Contingency Theory of Administration, which together provide a complementary lens for understanding how public health workers' strikes influence the management of school-based immunization programmes in Chuka South Sub-County, Kenya. The two theories explain both the systemic disruptions in service delivery and the managerial challenges experienced by school administrators during periods of industrial action.

2.1.1 Health Systems Theory

The Health Systems Theory, as advanced by the World Health Organization (WHO, 2007), conceptualizes health service delivery as a system composed of interdependent building blocks, including health workforce, service delivery, health information systems, access to medicines, financing, and governance. The effectiveness of health interventions depends on the smooth functioning and coordination of these components.

In this study, school-based immunization programmes are viewed as part of a broader health system that operates through collaboration between the Ministry of Health and the Ministry of Education. Public health workers constitute a critical component of the health workforce responsible for vaccine distribution, cold chain management, immunization delivery, and monitoring of adverse reactions. When strikes occur, this key component is disrupted, resulting in breakdowns in service delivery, delayed immunization schedules, accumulation of unimmunized pupils, and reduced immunization coverage.

This theory directly informs the first objective by explaining how public health workers' strikes disrupt the planning and implementation of school-based immunization programmes through the breakdown of essential health system components, particularly the health workforce. It further contributes to understanding how these systemic disruptions cascade into operational failures within schools, thereby affecting continuity of immunization services.

2.1.2 Contingency Theory of Administration

The Contingency Theory of Administration, developed by Fiedler (1967), posits that there is no single best way of managing organizations; rather, effective management depends on situational variables such as environmental conditions, resource availability, and task complexity. Managers are therefore required to adapt their strategies to fit the demands of the situation.

In the context of this study, school administrators in Chuka South Sub-County are compelled to manage school-based immunization programmes under unstable and unpredictable conditions created by public health workers' strikes. During such periods, they attempt to mobilize parents, reschedule immunization activities, and coordinate with alternative service providers, despite lacking technical expertise, authority, and logistical capacity such as cold chain systems and vaccine handling skills.

This theory is directly relevant to the second objective by explaining the challenges faced by school administrators in managing immunization programmes during strikes. It highlights that these challenges arise from situational constraints that require adaptive responses, yet school leaders often lack the necessary resources, technical capacity, and institutional support to effectively adjust to such disruptions.

2.2 Empirical Studies

Empirical evidence consistently shows that school health programmes, particularly immunization initiatives, play a critical role in reducing child morbidity and improving school attendance. Studies indicate that when effectively implemented, school-based immunization enhances coverage of vaccine-preventable diseases and strengthens early disease prevention efforts among school-going children (Akiyama et al., 2020; Adigun & Odeleye, 2025; Abdul et al., 2024). However, the success of these programmes is highly dependent on the stability of the health workforce responsible for planning and implementation. Disruptions within this workforce, particularly through industrial action, have been associated with interruptions in service delivery and reduced immunization uptake in school settings (Gouge et al., 2023; Mills, 2022; Brooks et al., 2020).

Research further shows that public health workers' strikes significantly disrupt routine immunization

systems by halting vaccine distribution, delaying scheduled immunization campaigns, and weakening cold chain logistics. These disruptions often lead to accumulation of unimmunized cohorts and increased vulnerability to outbreaks of preventable diseases among school-aged children (Olamijuwon & Odimegwu, 2021; Adjei & Boateng, 2022; Wambua et al., 2022). In many developing contexts, schools lack the technical capacity to independently sustain immunization programmes during such strikes, resulting in complete reliance on external health personnel (Mills, 2022; Gouge et al., 2023; Adigun & Odeleye, 2025). This directly relates to the first objective of the study, which examines how strikes affect planning and implementation of immunization programmes.

Empirical studies also highlight that school administrators face significant managerial and operational challenges during periods of health worker strikes. These challenges include inability to reschedule immunization activities effectively, lack of technical expertise in vaccine handling, poor coordination with health authorities, and inadequate communication with parents and communities (Adepoju & Olanrewaju, 2021; Brooks et al., 2020; Akiyama et al., 2020). Additionally, administrators often lack institutional guidance and resources to manage backlogs of missed immunizations, further weakening school health service delivery (Gouge et al., 2023; Mills, 2022; Wambua et al., 2022). These findings directly inform the second objective by illustrating the practical challenges faced in managing school-based immunization during strikes.

Comparative empirical evidence from different regions suggests that the impact of health worker strikes varies depending on the strength of intersectoral coordination and institutional preparedness. In some contexts, strong collaboration between health and education sectors has helped mitigate disruptions, while in others, weak coordination has led to significant service breakdowns and increased health risks among children (Adjei & Boateng, 2022; Bakiika et al., 2023; Brooks et al., 2020). Studies further emphasize that sustainable school health programmes require resilient systems that can withstand workforce disruptions through contingency planning and decentralized support mechanisms (Akiyama et al., 2020; Wambua et al., 2022; Abdul et al., 2024). These findings underscore the importance of strengthening management systems to ensure continuity of immunization services even during periods of industrial unrest.

3.0METHODOLOGY

This study adopted a mixed-methods research design that combined both quantitative and qualitative approaches within a single study to provide a more comprehensive understanding of the research problem (Creswell & Plano Clark, 2018). In the context of this study, a mixed-methods design was highly appropriate because the phenomenon under investigation involves not only measurable impacts (such as frequency of missed immunization services) but also subjective experiences (such as the perceptions of teacher in charge of school health programs, public health workers and head teachers). The quantitative component involved administering structured questionnaires to collect numerical data on the extent of disruption (for example, number of postponed immunizations and school absenteeism rates during strike periods). Meanwhile, the qualitative aspect involved interviews to explore deeper insights, such as how school heads managed health emergencies or how learners were affected emotionally and socially. According to Johnson, Onwuegbuzie and Turner (2007). The mixed methods approach allows researchers to draw from the strengths and minimizes the weaknesses of both quantitative and qualitative methods, leading to a robust, valid and credible results

From the study population, Yamane’s formula was used to determine the sample size of 240 respondents. The study employed stratified random sampling followed by proportionate sampling to ensure representativeness from population group. The population was stratified into three groups based on their roles: teachers in charge of school health programs, public health workers and headteachers. Within each

stratum, simple random sampling was then used to select participants proportionally, based on the calculated sample size for each group. This ensured that each subgroup was adequately represented in the final sample, thereby enhancing the precision and the generalizability of the study findings (Creswell & Creswell, 2018)

The study employed a combination of structured questionnaires for public health workers and interview guides for head teachers and teachers in charge of health programs, for data collection. Interview guide for head teachers was designed to explore in-depth how public health workers' strikes influence the management of school health programs like immunization in Chuka South Sub-County. Questionnaires were administered to the public health officers during regular working hours, with assistance from the head of the sub-county public health, to create a conducive and supportive environment. Throughout the data collection period, the researcher maintained strict ethical standards**,** including obtaining informed consent, ensuring anonymity and confidentiality and emphasizing the voluntary nature of participation. All data collected were securely stored and used solely for the purpose of this research.

In this study, data was analyzed to determine the influence of public health workers' strikes on the management of school-based immunization programs. Both quantitative and qualitative data analysis techniques were employed depending on the nature of the data collected. To assess the influence of public health workers' strikes on the management of immunization programs in primary schools, descriptive statistics (frequencies and percentage) were used to analyze responses from teachers in charge of the health programs and head teachers on the frequency and impact of immunization disruptions. Cross-tabulations explored associations between strike duration and immunization program disruptions. Thematic analysis was used for interview responses to identify common themes regarding challenges and coping mechanisms in managing immunization during strikes.

4.0 RESULTS/FINDINGS OF THE STUDY

Data was gathered from a total of 173 public health workers, 10 teachers and 8 headteachers, from Chuka South Sub-County, Kenya. This comprised 191 individuals out of the expected 240 participants, resulting in a response rate of 79.58%. According to Babbie and Mouton (2007), a response rate exceeding 50% is considered sufficient for analysis and is deemed reliable. Hence, the response rate of respondents was considered adequate for the purpose of data analysis. The 49 public health workers whose response are not captured confirmed the shortage of such service providers in Chuka South Sub-County.

Public health workers were asked if they were involved in school immunization activity during strike and that how the strike affected the delivery of the program. They responded as shown in table 1 below

Table 1: Effect of Strikes on Immunization Programs

Characteristics	Category	Frequency	Percentage(%)
Involved in any school immunization activities during the strikes	Yes	170	98.3
	No	3	1.7
	Total	173	100.0
Effect of Strike on Immunization			
1. Delayed vaccination		168	32.7
2. Incomplete immunization		169	32.9

3. Reduced number vaccinated children		170	33.1
4. No significant effect		6	1.2
	Total	513	100.0

Public Health Workers (N=173)

Majority of public health workers (99.4%) were involved in administering school immunization programs indicating that most health workers participated in the implementation of the immunization programs. Moreover, slightly less than a third (32.7%) of respondents indicated that strikes affect the delivery of immunization programs by delaying vaccination, (32.9%) indicated that there was a challenge in completing the immunization program, a third of the respondents (33.1%) observed that there was reduction in the number of children being vaccinated and others indicated that there is no significant effect to the programs as indicated in Table 1 above.

The findings indicated that the society highly depended on the public health workers to deliver immunization which when interrupted through strikes, affected the delivery and therefore creating a gap in exposing the children to diseases which can be prevented. The management of schools therefore were left to intervene by ensuring that the immunization programs were conducted to the latter. This could be addressed through seeking alternative immunization health programs at a cost from either private sector or NGOs. A study by Olamijuwon and Odimegwu (2021) found that prolonged public health workers' strikes were associated with notable declines in routine immunization coverage, resulting in heightened risks for vaccine-preventable diseases.

Qualitative data from the interview conducted, interviewee X indicated that;

"Strikes disrupted the scheduled immunization activities leaving learners vulnerable to disease outbreaks. Further to this, alternative strategies were employed to facilitate immunization, including engaging parents to seek the health services at nearby health centers.

Interviewee Y, indicated that there was a little bit of different feeling as;

"Striking resulted in rescheduling of immunization programs at my school. This led to the management of the school involving the parents to take responsibility of their children fully, though most parent decline the task. Public health strikes also disrupted the flow of health education to the children, prompting teachers to step in and sensitize learners on the benefits of health education.

Interviewee Z, the head teacher noted that

"*Public health workers strike did affect immunization activities and parents were called and advised to take their children for immunization programs*." He added that "*School usually provides necessary resources like soap and clean water to their consumers. This is a teacher led initiative in the school and thus a good intervention in case there are strikes by the health workers."*

This was triangulated with the teachers' interview who had unanimously agreed that public health workers strike disrupted school health programs, particularly immunization programs. The strikes forced schools to halt or reschedule such critical services, leaving children vulnerable to preventable diseases and shifting the burden of care to parents. The qualitative findings of both the teachers and the head teachers, implied that public health workers strike disrupted management of essential school-based health services especially immunization leaving children at a higher risk of preventable diseases. This made the system overly reliant on the external health services providers, which may not be adequate and tenable

Table 2: Impacts of Public Health Workers' Strikes on Immunization Programs Cross Tabulation

			Do you think the strike did affect the management of immunization programs		Total
			Yes	No	
Experienced the impacts of public health workers' strikes during your tenure	Yes	Count	41	73	114
		% of Total	23.7%	42.2%	65.9%
	No	Count	9	50	59
		% of Total	5.2%	28.9%	34.1%
Total		Count	50	123	173
		% of Total	28.9%	71.1%	100.0%

Public Health Workers (N=173)

The study thus proceeded to assess the inferential influence of strikes on School Immunization Programs. The first hypothesis, $H_0 1$ sought to establish whether public health workers' strikes influenced the management of immunization programs in primary schools in Chuka South Sub-County. Chi Square was applied for this purpose and yielded the findings such as summarized in Table 2 above.

Table 3: Chi-Square Tests on impacts of Public Health Workers' Strikes on Management of Immunization Programs

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.943[a]	1	0.163		
Continuity Correction[b]	0.113	1	0.737		
Likelihood Ratio	2.163	1	0.141		
Fisher's Exact Test				0.341	0.341
Linear-by-Linear Association	1.932	1	0.165		
N of Valid Cases	173				

Public Health Workers (N=173)

Results from the cross-tabulation showed that slightly less than three quarters (71.1%) of the respondents believed that public health workers strike had no effect on the management of immunization programs compared to those who believed it had an effect (28.9%). The inferential interpretation of the observation is summarized in Table 3 above

Chi-square results, χ^2 (1) =1.943, p=.163 showed that there was no statistically significant effect of public

health workers strike on immunization programs. Therefore, the hypothesis H_o1: There was no statistically significant influence of public health workers' strikes on the management of immunization programs in primary schools in Chuka South Sub-County was therefore accepted.

Discussion

The findings from the study reveal that although public health workers were highly involved in school immunization activities (98.3%), the majority reported that strikes did not significantly disrupt immunization service delivery in statistical terms. Specifically, the chi-square analysis showed no significant association between public health workers' strikes and the management of immunization programmes, χ^2 (1) = 1.943, p = .163, leading to the acceptance of the null hypothesis. This suggests that, within the study context, immunization services were to some extent maintained even during periods of industrial action, possibly due to compensatory efforts by school administrators and alternative service arrangements. This finding aligns with Olamijuwon and Odimegwu (2021), who note that while strikes may reduce routine immunization efficiency, contextual mitigation strategies can sometimes cushion the immediate system-wide impact.

However, qualitative findings present a contrasting perspective, indicating that strikes disrupted scheduling, delayed vaccination, reduced the number of children vaccinated, and forced schools to adopt coping mechanisms such as rescheduling and referring parents to nearby health facilities. Teachers and headteachers further reported increased burden on schools, including the need to sensitize learners on health matters and provide basic hygiene support, highlighting a shift of responsibility from health workers to educators. These disruptions, though not statistically significant in aggregate analysis, reflect operational strain at the school level and potential vulnerability in service continuity. This aligns with Adjei and Boateng (2022), who emphasize that health worker strikes often create hidden disruptions in preventive school health services, even when statistical impacts appear minimal. Brooks et al. (2020) further argue that such interruptions can weaken preventive health coverage and increase exposure risks among school-aged children.

5.0 CONCLUSION AND RECOMMENDATIONS

Conclusion

The study examined the influence of public health workers' strikes on the management of school-based immunization programmes in primary schools in Chuka South Sub-County. The findings revealed that although public health workers' strikes do not show a statistically significant effect on the overall management of immunization programmes, they still create notable operational disruptions such as delays, rescheduling of activities, and temporary reductions in vaccination coverage. These disruptions are often absorbed through adaptive responses by school administrators, including coordination with parents and alternative service arrangements, which help maintain continuity of services. Therefore, while the formal statistical analysis indicates no significant overall effect, the qualitative evidence suggests that strikes still pose practical challenges to the smooth and efficient delivery of immunization services in schools, implying that sustained system resilience depends on strong intersectoral coordination and contingency planning.

Recommendations

Based on the study objectives, the following recommendations are made:

i. There is a need for policy reform to formally designate school-based immunization as an essential health service within schools. This would ensure continuity of services during public health workers' strikes while simultaneously encouraging the resolution of workers' grievances through structured dialogue and negotiation mechanisms to prevent service disruption.

ii. The Ministry of Health, in collaboration with the Ministry of Education, should consider training and certifying school nurses or selected teachers in basic immunization and vaccine handling procedures under strict supervision. This would enhance preparedness and provide a contingency mechanism to sustain immunization services during periods of health workforce shortages or industrial action.

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