REVIEW ARTICLE OPEN ACCESS

Absenteeism of Healthcare Workers in Primary Healthcare in Sub-Saharan Africa: A Scoping Review

Larissa Klootwijk^{1,2} 🕞 | Eva Zeyrek¹ | Festus Njuguna³ | Johannes C. F. Ket⁴ | Saskia Mostert⁵ | Gertjan Kaspers^{1,2}

¹Emma Children's Hospital, Amsterdam UMC, Vrije Universiteit, Amsterdam, The Netherlands | ²Princess Máxima Center for Pediatric Oncology, Utrecht, The Netherlands | ³Department of Child Health and Pediatrics, Moi Teaching and Referral Hospital, Moi University, Eldoret, Kenya | ⁴Medical Library, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands | ⁵Independent Researcher

Correspondence: Larissa Klootwijk (L.Klootwijk@prinsesmaximacentrum.nl)

Received: 22 April 2024 | Revised: 25 November 2024 | Accepted: 14 December 2024

Funding: The institutional positions at Princess Máxima Centre of Larissa Klootwijk is, and of Saskia Mostert was, funded via the programs and projects of the World Child Cancer—The Netherlands foundation.

Keywords: absenteeism | primary healthcare | Sub-Saharan Africa

ABSTRACT

Introduction: Sub-Saharan Africa is facing a severe crisis in human resources for health. Primary healthcare is the most affected. This problem is aggravated by absenteeism, implying that healthcare workers are absent on duty during scheduled working hours. This scoping review maps existing literature on absenteeism among primary healthcare workers in Sub-Saharan Africa.

Methods: This scoping review complies with the Population Concept Context guidelines of Arksey and O'Malley and the PRISMA 2020 checklist. A literature search (Medline, Embase, Scopus, Africa Index Medicus) was performed from inception until December 2023 in collaboration with a medical information specialist. Peer-reviewed English-published literature was considered. Two independent reviewers screened titles, abstracts, and full-texts.

Results: Twenty-four studies were included from 7 of 46 Sub-Saharan countries (15%). Prevalence of absenteeism varied from 14% to 49%. Causes at individual and health-system levels were explored in 16 studies (67%) and included physician dual practices (75%), low wages (69%), and insufficient supervision (56%). Consequences at the healthcare worker and patient level were described in 14 studies (58%) and included hindered/delayed access to care (64%), high workload (29%), and increased treatment costs when patients are forced to attend private facilities (22%). Recommendations to address absenteeism were provided in 18 studies (75%) and included regular supervision (33%), performance-based rewards/punishments (33%), and augmented salaries (33%).

Conclusion: Absenteeism is highly prevalent among primary healthcare workers in Sub-Sahara Africa. Its adverse impact on both healthcare workers and patients is profound. The complexity of different individual and health system causal factors shows that a multifactorial approach to address absenteeism is warranted.

1 | Introduction

Sub-Saharan Africa is facing a severe crisis in human resources for health [1]. Primary healthcare is often the most affected [2]. This problem is aggravated by absenteeism of healthcare workers. Healthcare worker absenteeism can be defined as voluntary absence on duty while not off duty. This definition, therefore, excludes absence on duty related to sickness, authorised leave or other obligations that concern involuntary absence on duty [3]. The authors of this manuscript experienced high prevalences of

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited. the use is non-commercial and no modifications or adaptations are made.

© 2025 The Author(s). The International Journal of Health Planning and Management published by John Wiley & Sons Ltd.

Abbreviations: HIC, high-income countries; LMIC, low- and middle-income countries.

Summary

- Absenteeism is highly prevalent in primary healthcare in Sub-Sahara Africa
- Causes of absenteeism are rooted in individual-level causes and health system-level
- The impact of absenteeism on patients and healthcare workers is profound
- A multifactorial approach to address absenteeism is warranted

absenteeism during the implementation of a childhood cancer awareness programme amongst primary healthcare workers in Kenya. These high rates of absenteeism drove the team to explore the problem of absenteeism further [4].

A World Bank working group found only 70% clinic attendance during scheduled working hours amongst a sample of 22,746 healthcare workers in Kenya, Madagascar, Mozambique, Nigeria, Niger, Senegal, Sierra Leone, Tanzania, Togo, and Uganda [5]. While Sub-Saharan Africa has 25% of the global burden of disease, it has only 3% of the healthcare workers worldwide to care for their people [6]. Absenteeism amongst this limited amount of available healthcare workers magnifies this human resource crisis for healthcare even further and poses a threat to access to care for patients [6]. Moreover, those healthcare workers who are present on duty are often already subjected to an overwhelming amount of work and stress, causing low job satisfaction [7]. When their colleagues are either voluntarily or involuntarily absent on duty, this increases the workload and stress even further and could ultimately lead to involuntary reasons for absenteeism, such as burnout. Besides, low job satisfaction itself could lead to voluntary absenteeism. Needless to say, the shortages of medical staff cause suffering for people in need of care and could ultimately lead to poor patient outcomes [8]. The shortage of healthcare workers is especially felt in rural areas, as healthcare workers often prefer to work in more urban areas. Community service systems in some countries aim to engage healthcare workers to work in rural areas for the first years after their graduation [9]. However, this system poses another risk to absenteeism as healthcare workers might prefer to return to their home base. Additionally, employment and wage freezes in some African countries caused by a reduced public health budget contributed to the human resources crisis in healthcare as well [5, 10, 11].

The problem of absenteeism can threaten healthcare workers' availability in low- and middle-income countries (LMIC) and high-income countries (HIC) [3, 12, 13]. Similarities and differences exist in causes for absenteeism between these settings. In both LMIC and HIC, poor working conditions, low payment, and high workload have been described as causes of absenteeism. However, specific socio-cultural reasons for absenteeism have been predominantly reported in LMIC, such as adverse weather conditions, travel and transportation problems, high acceptance of physician dual practices, limited monitoring systems, lacking equipment and medication stockouts, pressure for presence at frequent social events like marriages or burials, and attendance at examinations [3, 14–16].

Insight into the extent and nature of absenteeism in LMIC is still limited, and particularly its influence on primary healthcare in Sub-Saharan Africa is not yet fully understood [3]. It is essential to understand this extent, the causes and impact of absenteeism on this already vulnerable health system with a persistent human resource crisis. The objective of this study is, therefore, to map the existing literature on absenteeism among primary healthcare workers in Sub-Saharan Africa.

2 | Methods

This scoping review adheres to the Population Concept Context guidelines of Arksey and O'Malley and the PRISMA 2020 checklist [17, 18]. A comprehensive search was performed in the databases OVID/Medline, Embase.com, Elsevier/Scopus and Africa Index Medicus from inception to December 2023 in collaboration with a medical information specialist (JCFK). The search included controlled and free text terms for synonyms of 'absenteeism' and 'primary health care workers' or 'primary health care' and 'Sub-Saharan Africa'. The medical information specialist tested the search before the actual search, which was performed without restrictions for methodology, date or language. The entire search strategies can be found in Appendix A. Duplicate articles were excluded using Endnote X20.0.1 (Clarivate), following the Amsterdam Efficient Deduplication (AED)method [19] and the Bramer method [20]. Additionally, Google Scholar and reference lists of included papers were checked to identify potentially relevant additional papers.

All peer-reviewed literature in English was reviewed. Studies addressing the experiences of healthcare workers and patients with absenteeism in primary healthcare in Sub-Saharan Africa were included. The following 46 countries are considered to be part of Sub-Saharan Africa: Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Tanzania, Togo, Uganda, Zambia, and Zimbabwe [21]. Furthermore, studies that explored reasons for absenteeism were considered for inclusion. Studies were excluded when papers did not discuss absenteeism or primary healthcare workers or did not concern countries within Sub-Saharan Africa. Studies that had no full text available and reviews were also excluded.

To examine the eligibility of the articles, titles and abstracts were screened by two independent reviewers (LK and SM). The inclusion of studies was based upon the agreement of both reviewers. Title and abstract screening was followed by a full-text screening, again conducted by two independent reviewers. The two reviewers mutually agreed on the inclusion of the studies during the decision-making process. The following characteristics were extracted from the included studies and coded for descriptive content analysis: title, first author, publication year, country, type of study, data collection tool, study period, type of respondents: healthcare workers and patients, sample size, and primary study outcome regarding absenteeism: prevalence, causes, consequences, experiences, and recommendations to address it.

3 | Results

Table 1 and Figure 1 show that 3677 studies were identified, of which 1354 were removed as duplicates. Following a screening of titles and abstracts, 2284 studies were excluded. After reading the full-text articles of the remaining 38 studies, 24 met the inclusion criteria and were used for descriptive content analysis.

Six different themes were encountered during the content analysis. These themes include (1) prevalence of absenteeism, (2) causes of absenteeism, (3) healthcare workers' experience with absenteeism, (4) patients' experience with absenteeism, (5) consequences of absenteeism, and (6) recommendations to address absenteeism. These six themes are discussed in Tables 2-6.

3.1 | Study Characteristics

Table 2 presents the characteristics of the 24 included studies [22-45]. Studies were conducted in 7 out of the 46 Sub-Saharan countries (15%): Uganda (n = 9, 38%), Nigeria (n = 8, 33%), Tanzania (n = 4, 17%), Malawi (n = 2, 8%), Kenya (n = 2, 8%), Ethiopia (n = 1, 4%) and Senegal (n = 1, 4%). The study designs of the included studies were: qualitative study (n = 14, 58%), mixed methods study (n = 6, 25%), and observational study (n = 4, 17%). The data collection tools that were used involved in-depth interviews (n = 14, 58%), focus group discussions (n = 10, 42%), facility surveys (n = 8, 33%), questionnaires (n = 6, 25%), consultation observation (n = 1, 4%) and unannounced facility visits (n = 1, 4%). Studies were published in 2006 (n = 2), 2011 (n = 2), 2012 (n = 1), 2016 (n = 1), 2017 (n = 3), 2018 (n = 2), 2019 (n = 4), 2020 (n = 3), 2021 (n = 2), 2022 (n = 2) and 2023 (n = 2). The duration of the study varied from 1 to 60 months. The total sample size of the 24 studies combined is 11,897 respondents, varying from 5 to 7025 respondents per study and a median of 83 respondents. Reported themes concerned: prevalence of absenteeism (n = 8, 33%), causes of absenteeism (n = 16, 67%), healthcare workers' experiences with absenteeism (n = 3, 13%), patients' experiences with absenteeism (n = 5, 21%), consequences of absenteeism (n = 14, 58%), and recommendations to reduce absenteeism (n = 18, 75%).

3.2 | Prevalence of Absenteeism

The prevalence of absenteeism at primary healthcare facilities in Sub-Sahara Africa was evaluated in eight studies (33%) [22, 24-26, 31, 32, 40, 41]. The reported prevalence varied from 14% to 49%. One study reported absenteeism prevalence in four different countries: Uganda, Tanzania, Kenya and Senegal. Clustered per African region: prevalence was reported for Senegal and Nigeria in West Africa, Uganda, Tanzania, Kenya in East Africa, and Malawi in Southern Africa. The six studies that reported absenteeism prevalence in East Africa ranged from 14% to 46% absenteeism prevalence. In Uganda, absenteeism was assessed through direct physical verification of the healthcare workers' presence at the facility. An absenteeism rate of 37% was found, measured on two different occasions amongst 100 health facilities in different areas [22]. In Tanzania, five out of eight healthcare workers routinely working in four selected public reproductive and child health clinics were present. According to the authors, this reflects the problem of absenteeism at all four facilities [24]. Another study in Tanzania conducted a health facility survey in 134 health facilities spread over five districts. Staff employed at a facility and staff present on duty were documented. The absence of employed clinical staff and nurses on duty was 44% and 49% on the date of the visit [26]. In Tanzania, the mean prevalence of absenteeism at primary health facilities across 21 regions was 25.05. To measure this, two facility surveys and unannounced visits were combined [32]. In Uganda, high rates of healthcare worker absenteeism were found at public sector health facilities. Most absenteeism was documented at primary public health clinics, where no staff was present on 42% of all days monitored. By contrast, this number was less than 5% in higher-level public hospitals and private facilities [41]. In Uganda, Kenya, Senegal, and Tanzania, the absence rates of 7025 healthcare workers at 7314 health facilities were assessed and demonstrated as 46%, 28%, 20%, and 14% for the respective countries. Ten randomly sampled healthcare workers absent from the facility for reasons other than being off duty, divided by the number of workers that are not off duty, were used to measure the absence rates [31]. A study in Nigeria evaluated self-reported absenteeism by interviewing healthcare workers on their absenteeism practices in the past year. In total, 412 healthcare workers were interviewed, and 320 healthcare workers were mentioned as having been absent from duty in the previous year [40]. In southern Africa, for Malawi, 49% and 42% of expected clinical staff man-days were available in health centres and hospitals, respectively. To measure this, interviews and surveys were held in 54 health facilities divided over 3 different districts. The shortages in staff man-days were mainly related to unfilled positions. For those posts that were filled, trainings and meetings were mentioned

TABLE 1 | Key search terms and databases.

Field	Search terms	OVID medline	Embase	Scopus	Africa medline
Population	Primary healthcare worker	1,124,833	2,352,375	680,528	145
Concept	Absenteeism	881,700	1,162,907	1,527,575	39
Context	Sub-Saharan Africa OR name of each applicable country	1,730,464	471,192	1,013,274	Not applicable
PCC ^a	Population AND concept AND context	1649	1120	858	39

^aPCC, Population Concept Context guidelines of Arksey and O'Malley [1].



FIGURE 1 | PRISMA flow diagram for the scoping review process. [Colour figure can be viewed at wileyonlinelibrary.com]

for 57% of all absences in health centres and for 52% in hospitals [25]. It is important to note that the studies employed diverse data collection techniques, creating challenges in comparing the reported prevalence rates. Additionally, the lack of consistent verification of findings in many studies raises concerns about the reliability of the results. For instance, verification was only attempted in some studies, such as the one study analysing self-reported absenteeism provided by supervisors monthly over a 10-month period, and another study verified absenteeism through a second unannounced follow-up visit to each clinic included in that study [22, 41]. In contrast, other studies relied on single-point surveys, utilising either self-reported absenteeism or unannounced visits without subsequent verification [24–26, 31, 32, 40].

3.3 | Causes of Absenteeism

Table 3 shows that causes of absenteeism in primary healthcare facilities were described in 16 studies (67%) [23, 24, 27, 29, 30, 33–39, 42–45]. Causes of absenteeism can be distinguished at two levels: individual level and health system level.

Causes of absenteeism at the individual level included: physician dual practices (n = 12, 75%), low wages (n = 11, 69%), cultural roles (n = 8, 50%), low job satisfaction and/or motivation (n = 6, 38%), personal reasons (n = 5, 31%), difficulty meeting private welfare (n = 5, 31%), lack of incentives (n = 3, 19%), entitlement to absenteeism (n = 2, 13%), job insecurity (n = 1, 6%), and poor community relationships (n = 1, 6%) [23, 24, 27, 29, 30, 33–39, 42–45]. Low wages and job insecurity in

the public sector can lead to physician dual practices [23, 27, 29, 30, 33, 34, 36, 38, 39, 42-45]. In Nigeria, 39% of healthcare workers interviewed reported having another job [44]. These dual practices are sometimes considered a necessity to maintain personal welfare. Healthcare workers sometimes experience societal pressure to maintain a high living standard. For instance, as a healthcare worker, you are not supposed to send your child to a cheap school, necessitating the search for additional income [30]. Lack of incentives included limited options for continued professional development and a lack of Christmas gifts such as a bag of rice to the facility [23, 38]. Cultural roles can stimulate absenteeism as well [29, 30, 34, 39, 42-45]. One study specifically explored differences between male and female absenteeism in Nigeria. Female absenteeism was more related to taking care of children and the elderly, whereas male absenteeism was related to their duties as breadwinners. Dual practice was consequently more common amongst men [43]. Community engagement can increase job satisfaction and less absenteeism [44]. In addition, entitlement to absenteeism was mentioned in several studies [35, 45]. Some healthcare workers feel entitled to absenteeism as a retaliation for their co-workers being absent on duty [30]. Without supervision and repercussions, healthcare workers may believe they are entitled to come to work as they please [33]. Other healthcare workers mentioned entitlement to absenteeism being related to the arrogance of co-workers [45].

Causes of absenteeism at health system level included: insufficient supervision (n = 9, 56%), neglected working environment (n = 9, 56%), lack of accountability such as punishments (n = 9, 56%), delayed payments (n = 8, 50%), rural posting and transportation issues (n = 7, 44%), power dynamics (n = 6, 38%), high

TABLE 2 Study cl	haracteristics ($n =$	24).						
H	^D ublication				Study	Type of		
First author	year	Country	Type of study	Data collection tool	period	respondent S	ample size	Study outcome
Chaudhury [22]	2006	Uganda	Observational study	Facility survey	2002- 2003	Healthcare workers	1350	- Prevalence
Lindelow [23]	2006	Ethiopia	Qualitative studv	Focus group discussions, questionnaire	2003	Healthcare workers and	69	- Causes
			(m)			patients		- Consequences
								- Patients' experience
								- Recommendations
Gross [24]	2011	Tanzania	Qualitative	In-depth interviews,	2008-	Healthcare	S.	- Prevalence
			study	consultation observation, informal discussion	2009	workers		- Causes
								- Consequences
								- Recommendations
Mueller [25]	2011	Malawi	Mixed methods study	Facility survey, questionnaires	2007– 2008	Healthcare workers	136	- Prevalence
Manzi [26]	2012	Tanzania	Mixed	Facility survey, in-depth	2004	Healthcare	163	- Prevalence
			methods study	interviews		workers		- Recommendations
Ackers [27]	2016	Uganda	Mixed	Facility survey, in-depth	2012-	Healthcare	50	- Causes
			methods study	interviews, focus group discussions	2016	workers		- Consequences
								- Recommendations
Allen [28]	2017	Uganda	Qualitative	Focus group discussions	2014	Patients	357	- Consequences
			study					- Patients' experience
Nyamweya [<mark>29</mark>]	2017	Uganda	Mixed	Questionnaire, in-depth	No	Healthcare	51	- Causes
			methods study	interviews	data	workers		- Healthcare workers' experience
								- Recommendations
Tweheyo [30]	2017	Uganda	Qualitative	Focus group discussions, in-	N0	Healthcare	95	- Causes
			study	depth interviews	data	workers		- Consequences
								- Recommendations
Hausken [31]	2018	Kenya,	Observational	Facility survey	2018	Healthcare	7025	- Prevalence
		Uganda,	study			workers		
		Tanzania,						
		Senegal						
								(Continues)

TABLE 2 (Continue of the continue of the content	ued) hiblication				Study	Tvne of		
First author	year	Country	Type of study	Data collection tool	period	respondent	Sample size	Study outcome
Fujii [32]	2018	Tanzania	Observational study	Facility survey, unannounced visits	No data	Healthcare workers	773	- Prevalence
Mukasa [33]	2019	Uganda	Qualitative study	Questionnaires, focus group discussions	2017	Healthcare workers	27	- Causes
								- Recommendations
Onwujekwe	2019	Nigeria	Mixed-	In-depth interviews, focus		Healthcare	40	- Causes
[34]			methods	group discussions		workers and patients		- Consequences
						4		- Patients' experience
								- Recommendations
Tweheyo [35]	2019	Uganda	Qualitative	In-depth interviews, focus	2012	Healthcare	95	- Causes
			study	group discussions		workers		- Consequences
								- Healthcare workers' experiences
								- Recommendations
Tumlinson [36]	2019	Kenya	Qualitative	In-depth interviews,	2015-	Healthcare	20	- Causes
			study	Questionnaires	2016	workers		- Consequences
								- Healthcare workers' experiences
								- Recommendations
Munyenyembe	2020	Malawi	Qualitative	Questionnaires	2018	Healthcare	487	- Causes
[37]			study			workers		- Recommendations
Agwu [38]	2020	Nigeria	Qualitative	In-depth interviews	2018	Healthcare	30	- Causes
			study			workers		- Consequences
								- Recommendations
Omwujekwe	2020	Nigeria	Qualitative	In-depth interviews, focus	No	Healthcare	70	- Causes
[39]			study	group discussions	data	workers		- Recommendations
								(Continues)

INDLE 2 (CUIUII	ineu								
	Publication				Study	Type of			1
First author	year	Country	Type of study	Data collection tool	period	respondent	Sample size	Study outcome	
Obodoechi [40]	2021	Nigeria	Qualitative	Questionnaire	2020	Healthcare	412	- Prevalence	
			study			workers		- Recommendations	
Zhang [41]	2021	Uganda	Observational	Facility survey	2011-	Healthcare	99 facilities	- Prevalence	
			study		2012	workers and patients	and 1555 households	- Consequences	
						4		- Patients' experience	
Odii [42]	2022	Nigeria	Qualitative	In-depth interviews	No	Healthcare	39	- Causes	
			study		data	workers		- Consequences	
								- Recommendations	
Ogbozor [43]	2022	Nigeria	Qualitative	In-depth interviews, focus	No	Healthcare	36	- Causes	
			study	group discussions	data	workers		- Consequences	
								- Recommendations	
Angell [44]	2023	Nigeria	Mixed	Facility survey with	2020	Healthcare	412	- Causes	
			methods	questionnaires, in-depth interviews		workers		- Recommendations	
Orjiakor [45]	2023	Nigeria	Qualitative	Focus group discussions, in-	2018-	Healthcare	56	- Causes	
			study	depth interviews	2020	workers and patients		- Consequences	
						4		- Patients' experience	
								- Recommendations	

TARLE 2 | (Continued)

	Lindelow	Gross	Ackers	Nyamweya	Tweheyo	Mukasa	Onwujekwe	Tweheyo	Tumlinson	Munyenyemb	e Agwu	Omwujekwe	Odii	Ogbozor	Angell	Orjiakor
Study Country	(23) Ethiopia	(24) Tanzania	(27) Uganda	(29) Uganda	(30) Uganda	(33) Uganda	(34) Nigeria	(35) Uganda	(36) Kenya	(37) Malawi	(38) Nigeria	(39) Nigeria	(42) Nigeria	(43) Nigeria	(44) Nigeria	(45) Nigeria
At individual le	vel															
Physician dual practice	x		Х	х	x	×	x		×		х	х	x	x		х
Low wages	Х		Х	х	х	х	Х		Х		х			х	х	х
Cultural				Х	Х		х					Х	Х	х	х	Х
roles																
Low job satisfaction	×			x	×		×			X					x	
Personal				Х		х	Х					х		х		
10420113																
Difficulties					х	Х	Х				х					Х
meeting																
private welfare																
זה להב ד	^										Λ				X	
incentives	<										<				<	
П., 4141																*
Entitlement					X											X
- to																
absenteeism																
Job					Х											
insecurity																
Poor															Х	
community																
sdmsmonara																
At health-syste	am level															
Insufficient su	upervision			Х		х	Х	Х	X	Х Х				Х	Х	
Neglected wo.	rking enviro.	nment		Х		х	Х	Х	X	×			Х		х	Х
Lack of accou	untability			Х	х		Х			Х		Х	х	х	х	х
Delayed salar	y payment				х	х	Х	х	X	X		Х		х		
Posting locati	on and trans	portation		X	х	х		Х	Х						Х	Х
Powerdynami	cs			Х					Х			Х	Х	х		Х
High job dem	land			Х		х	х	х	2	X	х					
															(Cc	ontinues)

TABLE 3 | Studies addressing causes of absenteeism in primary healthcare (n = 16).



job demand (n = 6, 38%), corruption (n = 4, 25%), weak health policies (n = 4, 25%), tolerance of absenteeism (n = 3, 19%), lacking accommodation at the facility for staff (n = 3, 19%), poor leadership (n = 2, 13%), educational activities without study leave (n = 2, 13%), weak security at the facility (n = 1, 6%)and non-use of attendance registers (n = 1, 6%) [23, 24, 27, 29, 30, 33-39, 42-45]. The posting location can stimulate absenteeism as living far from work and having to pay for travel costs to the facility are discouraging [34, 45]. In addition, rural facilities are rarely visited for supervision by health officials. Consequently, no control measures are in place to evaluate the presence of staff on duty and demand accountability [23, 27, 30, 36, 39, 42-45]. This lack of accountability seems to be less prevalent in private healthcare facilities. For example, a study in Kenya revealed that healthcare workers in private facilities experience more repercussions on absenteeism compared to public facilities [36]. Power dynamics also play a role in absenteeism. When healthcare workers have good relations with politically powerful figures, their colleagues cannot tell them to come to work because they have political backing [34, 39, 42, 43, 45]. Different types of power dynamics are discussed in a study from Nigeria. Both kinship relationships (such as family, friends or church members in high positions) and connections with powerful political figures can prevent sanctions on absenteeism [42]. For example, a local government administrative boss in Nigeria came for supervision and signed off all chronically absent staff as being present in the book without them having been present on duty [45]. In addition, delayed payments demotivate healthcare workers to present on duty [27, 29, 30, 33-35, 38, 43]. For example, one healthcare worker in Uganda explained he had not received his salary for over 6 months [27]. Several of these factors relate to corruption and weak health policies [23, 24, 27, 29, 30, 33-39, 42-45].

3.4 | Healthcare Workers' Experiences With Absenteeism

Healthcare workers' experiences with absenteeism in primary healthcare facilities were specifically elaborated in three studies (6%) [29, 35, 36]. One study from Uganda, for example, explored the coping mechanisms of 95 healthcare workers towards the absence of their co-workers on duty. Absenteeism led to the postponement of patient appointments, unnecessary patient referrals, unauthorised task shifting and a high workload for remaining healthcare workers. Two coping mechanisms were distinguished: emotional and problem-solving reactions. With regard to emotional reactions, healthcare workers sometimes unwillingly project their frustration onto their patients, resulting in broken communication or task omission. Regarding problemsolving reactions, healthcare workers made alterations to weekly schedules, lowering quality standards and compromising patient safety. In addition, this study revealed that absenteeism of coworkers was tolerated [35].

3.5 | Patients' Experiences With Absenteeism

Table 4 shows that patients' experiences with absenteeism in primary healthcare facilities were reported in five studies (22%)

TABLE 4 Studies addressing patients' experiences with absenteeism in primary healthcare	(n	=	5)).
---	----	---	----	----

author	Country	Setting	Type of patients	Patients' experiences
Lindelow [23]	Ethiopia	Public and private facilities	Various types of patients	 No/limited trust in healthcare and healthcare workers
				- Long queues for patients
				– Corruption
				 Unnecessary referral to private facility so that doctor can charge more for services
				 Increased treatment costs when patients are forced to go to a private facility
				- Patients cannot afford a private facility
				– The poor are confined to the bad public sector and die
				- Delayed access to healthcare
Allen [28]	Uganda	Public facilities	Children \leq 5 years old	 Poor or inadequate facility supplies, staffing, and infrastructure
				- Hindered and delayed access to care
				 Increased self-diagnosis or use of alternative medicine
Zhang [41]	Uganda	Public and private facilities	Children ≤ 5 years old with malaria	 Limited staff in health facility reduces malaria testing capacity
				- Decreased treatment provision
				 Increased treatment costs when patients are forced to go to a private facility
				- Increased out of pocket expenses
				- Hindered and delayed access to healthcare
Orjiakor [45]	Nigeria	Public facilities	Various types of patients	 No/limited trust in healthcare and healthcare workers
				- Healthcare workers are often arrogant and mean to patients
				 Both healthcare workers and patients are not content with absenteeism
				 Increased treatment costs when patients are forced to go to a private facility
				 Sometimes patients are only aware of absenteeism when health facilities shut down—delayed access to healthcare
Onwujekwe	Nigeria	Public facilities	Various types of patients	- Hindered and delayed access to care
[34]				 Increased treatment costs when patients are forced to go to a private facility
				 Poor patients will turn to alternative medicine as they cannot afford private healthcare

[23, 28, 34, 41, 45]. The studies took place in Ethiopia, Uganda and Nigeria. Three studies were solely conducted at public facilities [28, 34, 45], whereas the other two were conducted in private and public facilities [23, 41]. Absenteeism hindered and delayed access to care because facilities were either closed or had long queues. Treatment costs increased as healthcare

workers in public facilities referred their patients to private facilities with the excuse that specific instruments were not available. However, in reality, such referrals were made to generate higher earnings from patients. Due to absenteeism, patients' trust in healthcare is low. Due to corruption, personal relationships are important for getting appointments, skipping

Studies Country	Lindelow (23) Ethiopia	Gross (24) Tanzania	Ackers (27) Uganda	Allen (28) Uganda	Tweheyo (30) Uganda	Mukasa (33) Uganda	Onwujekwe (34) Nigeria	Tweheyo (35) Uganda	Tumlinson (36) Kenya	Agwu (38) Nigeria	Zhang (41) Uganda	Odii (42) Nigeria	Ogbozor (43) Nigeria	Orjiakor (45) Nigeria
At healthcare worke	r level													
High workload		Х			Х		Х	Х						
Unauthorized task shifting		X			X		Х	X						
Frustration, including projecting frustration on natients					×									×
Ineffective workforce								X		Х				
Stress of healthcar workers	υ				x									
Corruption	Х													
Leaving other stafi behind	J		X											
Powerlessness of healthcare worker	s													Х
Community boycott of facility												x		
Retaliating absenteeism					Х									
At patient level														
Hindered and dela	iyed access to	care			Х	х	x	x	Х	х		x		X X
Increased treatmen	nt costs due to) referral to	private fac	silities	Х				Х					X
Seeking for alterns	ative treatmen	t methods							Х	Х				×
Long queues					Х					Х				
Healthcare worker	s project frust	tration on p	atients					ХХ						
Locked facilities/n	o healthcare v	vorker pres	tent					Х			х			
Increased out-of-p	ocket expense	s						x				×		
Unnessecary referi	rals					Х			2	X				
)	Continues)



FABLE 5 | (Continued)

queues, accessing drugs and receiving polite treatment. Selfdiagnosis or seeking alternative medicine by patients was increased due to poor services and the lack of available drugs at facilities [23, 28, 34, 41, 45].

3.6 | Consequences of Absenteeism

Table 5 highlights that the consequences of absenteeism in primary healthcare facilities were described in 14 studies (61%) [23, 24, 27, 28, 30, 33–36, 38, 41–43, 45]. Consequences of absenteeism can be distinguished at two levels: healthcare worker and patient levels.

Consequences of absenteeism at healthcare worker level included: high workload for remaining healthcare workers (n = 4, 29%), unauthorised task shifting (n = 4, 29%), frustration (n = 2, 14%), ineffective workforce (n = 2, 14%), stress (n = 1, 7%), corruption (n = 1, 7%), leaving other staff behind (n = 1, 7%), powerlessness (n = 1, 7%), community boycott of facility (n = 1, 7%), and retaliating absenteeism, meaning healthcare workers being absent on duty because their superiors are absent (n = 1, 7%) [23, 24, 27, 30, 33–35, 38, 42, 45]. Sometimes, the community takes action against the absenteeism by boycotting that specific facility. Generally, however, communities appear highly tolerant towards absenteeism as they do not want the only healthcare facility they have access to close [45].

Consequences of absenteeism at the patient level included hindered and delayed access to care (n = 9, 64%), increased treatment costs when patients are forced to go to private facilities (n = 3, 22%), seeking traditional or alternative treatment methods (n = 3, 22%), long queues for patients (n = 2, 14%), healthcare workers project their frustration of the high workload due to absenteeism on patients (n = 2, 14%), sometimes facilities remain locked when no healthcare workers are present at all (n = 2, 14%), increased out of pocket expenses (n = 2, 14%), unnecessary patient referrals (n = 2, 14%), postponement of patient appointments (n = 1, 7%), corruption (n = 1, 7%), low service quality standards (n = 1, 7%), deterring patients from adequate and prompt care seeking behaviour (n = 1, 7%), compromised patient safety (n = 1, 7%), poor people that cannot afford private healthcare die (n = 1, 7%), and acceptance of absenteeism out of fear for the facility to close (n = 1, 7%) [23, 27, 28, 30, 33–36, 38, 41, 43, 45]. Factors such as the projection of frustration on patients and unnecessary referrals impact not only patient safety but also deter patients from conventional care seeking in the future [27, 30, 33, 35].

3.7 | Recommendations to Address Absenteeism

Table 6 illustrates that recommendations to address absenteeism in primary healthcare facilities were provided in 18 studies (67%) [23, 24, 26, 27, 29, 30, 33–40, 42–45]. Recommendations to address absenteeism can be distinguished at the individual and health systems levels.

These recommendations included at individual level: augmented salaries for healthcare workers (n = 6, 33%), improvement of working conditions (n = 5, 27%), opportunities for training (n = 3,

An individual leet x x Augment startes x x Inprovement of x x Inprovement of x x Oppruntings for x x Oppruntings for x x Oppruntings for x x More reliable and x x Accomodation for x x Taxel x x Accomodation for x x Accomodation for x x More reliable and x <t< th=""><th></th><th>× × ,</th><th></th><th>× ×</th><th></th><th>× × × × ×</th><th>×</th><th></th><th></th></t<>		× × ,		× ×		× × × × ×	×		
Agreent selates X X X Inprovement of trainings X X X Opertunities X X X Opertunities X X X Opertunities X X X Opertunities X X X Now reliable and promy salary prome salary prome salary prome salary prome salary prome salary prome salary prome salary X X Accomodation for transitions X X X Accomodation for transitions X X Accomodation for transition nor safe X Accomo		× × ×		× ×		× × × × ×	×		
Introvenent of the function of		× ×		××		× × ×		х	
Opportunities for trainings X More eliable and prompt salay paynent X More reliable and prompt salay prompt salay X Allowances to cover X Travel crutical positions X Allowances to cover X Allowance and pusitive X Not dore governance X Not dore governance X Not dore and pusitive X <t< td=""><td>× × × × × × × × × × × × × × × × × × ×</td><td>×</td><td></td><td>×</td><td></td><td>× ×</td><td></td><td>х</td><td></td></t<>	× × × × × × × × × × × × × × × × × × ×	×		×		× ×		х	
More reliable and promp salary promp salary more reliable and commentation for travel travel travel travel posings Allowances to cover Tarel Travel travel posings Allowances to cover travel travel posing travel t	×	×				× ×			
Poutreal Accomodation for rural bostings Travel rimbursement for rural positings Allowanes to covet Allowanes to covet Allowanes to covet Allowanes to covet rest for childear Allowanes to covet Allowanes to covet rest for childear Policy revision incl. X Policy revision		×				××	x		
tratal postings Travel reinbursement for tranal postings Allowanes to covet Allowanes to covet Allowanes to covet Allowanes to covet Allowanes to covet Allowanes to covet Travel Policy revisions incl. National poly Policy revisions incl. Policy revisions incl. National poly Policy revisions incl. National poly Policy revisions incl. National poly Policy revisions incl. Policy revisions		× .				x		x	
Tarel rinbursement for trual portual portual portual portual Movances to covet Allowances to covet and portual poly revisions incl. Note to commune based reverds and publiment Community engagement Performance based reverds and publiment Community engagement The set of the set of	× ~ ^ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	× ,				×		:	
rembursement for rural potings Allowances to cover and consider Allowances to cover and constant of the consta	× ~	×						Х	
potings Allowances to cover costs for childcare At health-system level X X X X X X X X X X X X X X X X X X X		×							
Allowances to cover X X costs for childcare X X At health-system level X X X X Policy revisions incl X		×							
A halth-system level X		>					x		
Policy revisions incl. X <td>x x x</td> <td>~</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	x x x	~							
Regular supervision X X X X X Performance based revards and punishment X X X X Performance based revards and punishment X X X X Community engagement X X X X Increased job X X X X Increased accountability X X X X Investing in nore staff X X X X Addressing power X X X X X	X	<	х	х	х	х			х
Performance based X X rewards and punishment X X Community engagement X X Increased job X X Increased accountability X X Investing in more staff X X Addressing power X X	<	х х	х		х				
Community engagementXand/or committeesXIncreased jobXIncreased intersuresXIncreased accountabilityXInvesting in more staffXAddressing powerXInbalancesX		X	Х		Х Х		Х	Х	
Increased job X satisfaction measures X Increased accountability X X Investing in more staff X X Addressing power imbalances			Х				X	Х	х
Increased accountability X X Investing in more staff X X Addressing power imbalances	Х				Х	Х			
Investing in more staff X X Addressing power imbalances	Х Х								
Addressing power imbalances	×	x							
						х			х
Anti-corruption strategies							X		
Participatory solution X finding	Х								
Creating channels for					х				

TABLE 6 | (Continued)

		X	x	x	X	Х	
At health-system level	patient feedback	Monitoring by NGO's	Facility centred approach	Counseling sessions with frequent absentees	Efficient pension system	Internal supervision	

17%), accommodation provision for rural postings (n = 2, 11%), more reliable and prompt salary payment (n = 2, 11%), travel reimbursement for rural postings (n = 2, 11%) and allowances to cover costs for childcare (n = 2, 11%) [23, 24, 26, 27, 29, 30, 33–40, 42–45]. In Uganda, 27 healthcare workers recommended improving working conditions (electricity at the hospital, availability of diagnostics and medications, clean working space), regular supervision, benefits and better equipment. The staff mentioned that receiving more money and having access to supplies to perform their job will motivate them and improve their performance [33].

The following recommendations were mentioned at the health system level: policy revisions (n = 8, 44%), regular supervision (n = 6, 33%), performance-based rewards and punishments (n = 6, 33%), community engagement and/or committees (n = 5, 28%), increased job satisfaction measures (n = 3, 17%), increased accountability (n = 2, 11%), investing in more staff (n = 2, 11%), addressing power imbalances (n = 2, 11%), anticorruption strategies (n = 2, 11%), participatory solution finding (n = 1, 6%), creating channels for patients to give feedback about services (n = 1, 6%), monitoring by NGO's (n = 1, 6%), internal supervision (n = 1, 6%), facility centred approach (n = 1, 6%), counselling sessions with frequent absentees (n = 1, 6%) and efficient pension system (n = 1, 6%) [23, 24, 26, 27, 30, 35, 37, 38, 42, 45]. In Nigeria, 412 healthcare workers recommended the following performance-based rewards and punishments: training opportunities and promotion for present staff members, cancellation of annual leave for absent staff with absenteeism and provision of accommodation for rural postings [44]. In Kenya, 20 healthcare workers recommended the following policy revisions: creating channels for patients to give feedback about services, performance-based financing, and non-monetary incentives [36]. One study conducted in Nigeria specifically compared internal supervision (by managers within facilities) versus external supervision (by high-level managers outside facilities) and evaluated the first as more effective [40]. The majority of the recommendations to reduce absenteeism focussed on vertical solutions such as allocating more money to healthcare and health facility equipment. However, power dynamics and corruption prevent these vertical solutions from being effective. Several studies, therefore, recommend addressing these power imbalances to ensure long-term change [34, 39, 43].

4 | Discussion

This scoping review maps the existing literature on absenteeism among primary healthcare workers in Sub-Saharan Africa. The 24 included studies stemmed from only 15% of all Sub-Saharan African countries. Our review shows that absenteeism is highly prevalent (14%–49%) among primary healthcare workers in Sub-Sahara Africa. Its adverse impact on both healthcare workers and patients is profound. Several causes at the individual and health system levels were distinguished, ranging from low wages to delayed salary payment, physician dual practices, corruption, power dynamics, insufficient supervision, and no punishments in case of misconduct. Adverse consequences for healthcare workers were high workload, unauthorised task shifting, and frustration. Consequences for patients were dire and entailed hindered and delayed access to healthcare, unnecessary patient referrals, high treatment costs, low service quality standards, and compromised patient safety and outcomes. Recommendations to address absenteeism at individual and health system levels were provided by both healthcare workers and patients. Salaries should be augmented, working conditions improved, strict monitoring and supervision installed, anti-corruption measures endorsed, and opportunities created to empower the position of patients through feedback mechanisms and regulatory committees. These findings imply that absenteeism threatens the existing healthcare worker crisis and jeopardises access to healthcare in Sub-Saharan Africa. Its solution is complex and demands a multifactorial approach.

This review showed a prevalence of absenteeism ranging from 14% to 49%. These findings align with other studies conducted in LMIC beyond Sub-Saharan Africa [5, 22, 46]. Moreover, previous Sub-Saharan African studies analysing absenteeism prevalence at primary, secondary and tertiary care facilities combined found absenteeism prevalence rates up to 40% [5, 13, 47, 48]. Absenteeism is also prevalent in HICs. A 2017 survey conducted among nurses across multiple HICs and LMICs revealed that absenteeism was most common among nurses in Iceland and Australia, with 73% and 74% prevalence rates, respectively [12]. All these findings combined suggest that the prevalence estimates from this scoping review might even be an underestimation of the problem. The high prevalence of absenteeism poses a significant challenge to healthcare access and underscores the urgent need to develop and implement strategies to mitigate it.

According to the studies that were included in this scoping review, absenteeism appears to be caused by a complex interplay of various factors. It is important to understand the mechanisms that fuel absenteeism to design strategies that address this. At an individual level, low wages reduced healthcare workers' job satisfaction and prompted them to seek alternative sources of income, leading to dual practices. Several previous reviews that primarily investigated physician dual practices confirmed that the main reason for the phenomenon is to maximise income, usually by adding jobs in private healthcare next to their job in public healthcare [49, 50]. Low job satisfaction can significantly impact healthcare workers' morale and motivation [3, 51, 52]. When combined with a heavy workload, it can become a contributing factor to burnout. This suggests that involuntary absenteeism, such as burnout, can be related to causes of voluntary absenteeism [53-55]. According to our scoping review, the lack of accountability, insufficient supervision and corruption played a major role in sustaining absenteeism at the health system level. These findings have been confirmed by other investigations conducted at LMIC [48, 56]. Health system structures can be drivers of absenteeism, as inadequate health system funding, lack of transparency of resource allocation, insufficient monitoring systems and corrupt behaviour in leadership positions fuel absenteeism [57]. Absenteeism seems a complex and multifactorial concept for which an approach that addresses several components of the problem at both the individual and health system levels is needed.

This review illustrates the consequences of absenteeism using both patient- and healthcare-worker experiences. The impact of absenteeism on both these groups is far-reaching. The impact of absenteeism on patients reveals a threat to timely access to care and, therefore, universal health coverage [58–60]. Universal health coverage is challenged when health facilities are inadequately or unstaffed, resulting in unauthorised task-shifting and potentially adverse patient outcomes [58, 61]. Absenteeism, therefore, contributes to the number of deaths that could have been prevented in LMIC due to poor quality services, which is estimated to be around 5,000,000 in the year 2016 [58]. The grave impact of absenteeism on healthcare underlines the high need for solutions targeting this problem.

Recommendations to reduce absenteeism at individual and health system levels included increasing job satisfaction. augmentation of salaries, and improved workforce governance, including regular supervision and policy revisions such as nonmonetary incentives and anti-corruption strategies. National policy changes to reduce absenteeism need strong political support and effective governance to ensure sustainable improvements [62]. Previous studies have highlighted the importance of addressing absenteeism as a form of corruption, which can be defined as the misuse of entrusted power for personal gain, where public well-being is compromised for private benefit [15, 48]. Therefore, tackling absenteeism should be integrated into a country's anti-corruption strategies, including the implementation of monitoring systems, penalties for absenteeism, rewards for good performance, and fair compensation [48]. These measures can strengthen the health system and ultimately lead to better patient outcomes [15]. However, in lowand middle-income countries (LMICs), anti-corruption strategies often fail without government backing [63, 64]. A study in Uganda demonstrated that even with effective anti-corruption policies, absenteeism persisted due to low job satisfaction, underscoring the need to improve job satisfaction to foster a positive employer-employee relationship and promote employee morale [63]. Job satisfaction is closely linked to workload, salary, and working conditions, all of which require targeted policy interventions for meaningful change. However, experts emphasise how job satisfaction is highly related to strategies that improve intrinsic motivation. Dr. Pink elaborates on how agency, mastery and purpose are key to improving motivation [65]. The framework for enhancing joy in work also focuses on the employer-employee relationship and emphasises understanding what motivates employees [62]. Beyond higher salaries, it advocates for better work-life balance and active engagement with employees to collaboratively pursue a shared vision. Reciprocal accountability can be a positive consequence of such a shared vision. Finally, good leadership is essential in maintaining a healthy work environment where employee concerns are acknowledged and addressed [62, 66].

To the best of our knowledge, this scoping review is the first that maps the literature on absenteeism in primary healthcare in Sub-Sahara Africa. However, the limitations of this scoping review are that a small number of studies have been included that vary strongly in sample size and methodology. This posed a challenge in generalising study findings and drawing conclusions. However, the qualitative study design of most included studies provided important and valuable insights into healthcare workers' and patients' perspectives and experiences. Moreover, it is important to take into consideration that voluntary absenteeism is not the only cause of staff being absent on duty. Yet, this study did not cover involuntary reasons for absenteeism, such as sickness or burnout absenteeism, which could be caused by high workloads related to voluntary absenteeism of other staff. Absenteeism of all kinds influences access to healthcare negatively. Finally, only English articles were included. This implies that articles written in other languages were therefore excluded.

In conclusion, this scoping review highlights that absenteeism is highly prevalent among primary healthcare workers in Sub-Sahara Africa. Its adverse impact on both healthcare workers and patients is profound. The problem finds its roots in several individual and health system factors. The complexity of the causal factors shows that a multifactorial approach to address absenteeism is warranted. Moreover, further research is necessary to scale the problem and implement strategies to reduce it.

Acknowledgements

We are grateful for the support from the AFAS Foundation and World Child Cancer Netherlands.

Ethics Statement

The authors have nothing to report.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

References

1. C. Boakye-Agyemang, Chronic Staff Shortfalls Stifle Africa's Health Systems: WHO Study (Africa: WHO Africa).

2. M. L. Willcox, W. Peersman, P. Daou, et al., "Human Resources for Primary Health Care in Sub-Saharan Africa: Progress or Stagnation?," *Human Resources for Health* 13, no. 1 (2015): 76. Published online, https://doi.org/10.1186/s12960-015-0073-8.

3. A. Belita, P. Mbindyo, and M. English, "Absenteeism Amongst Health Workers-Developing a Typology to Support Empiric Work in Low-Income Countries and Characterizing Reported Associations," *Human Resources for Health* 11, no. 1 (2013): 34, https://doi.org/10. 1186/1478-4491-11-34.

4. L. Klootwijk, L. A. Osamong, S. Langat, et al., "Childhood Cancer Awareness Program in Bungoma County, Kenya," *Journal of Cancer Education* (2024). Published online June 22, https://doi.org/10.1007/s13187-024-02468-z.

5. L. Di Giorgio, D. K. Evans, M. Lindelow, et al., "Analysis of Clinical Knowledge, Absenteeism and Availability of Resources for Maternal and Child Health: A Cross-Sectional Quality of Care Study in 10 African Countries," *BMJ Global Health* 5, no. 12 (2020): 3377, https://doi.org/10. 1136/BMJGH-2020-003377.

6. WHO, "Health Workforce: The Health Workforce Crisis," (2009), https://www.who.int/news-room/questions-and-answers/item/q-a-on-the-health-workforce-crisis.

7. H. Merga and T. Fufa, "Impacts of Working Environment and Benefits Packages on the Health Professionals' Job Satisfaction in Selected Public Health Facilities in Eastern Ethiopia: Using Principal Component Analysis," *BMC Health Services Research* 19, no. 1 (2019): 494, https:// doi.org/10.1186/s12913-019-4317-5.

8. M. O. Mbombi, T. M. Mothiba, R. N. Malema, and M. Malatji, "The Effects of Absenteeism on Nurses Remaining on Duty at a Tertiary Hospital of Limpopo Province," *Curationis* 41, no. 1 (2018): e1–e5, https://doi.org/10.4102/curationis.v41i1.1924.

9. K. L. Matlhaba, "Compulsory Community Service for New Nurse Graduates in South Africa: A Narrative Literature Review," *Journal of Nursing Regulation* 13, no. 4 (2023): 66–80, https://doi.org/10.1016/S2155-8256(23)00031-5.

10. World Health Organization, "Crisis in Human Resources for Health in African Region," *African Health Monitor* 7, no. 1 (2007): 1–46.

11. O. Mæstad, "Human Resources for Health in Tanzania: Challenges, Policy Options and Knowledge Gaps," *CMI - Chr Michelsen Institute* 2006, no. 3 R (2006).

12. E. A. Burmeister, B. J. Kalisch, B. Xie, et al., "Determinants of Nurse Absenteeism and Intent to Leave: An International Study," *Journal of Nursing Management* 27, no. 1 (2019): 143–153, https://doi.org/10.1111/JONM.12659.

13. M. Nyathi and K. Jooste, "Working Conditions That Contribute to Absenteeism Among Nurses in a Provincial Hospital in the Limpopo Province," *Curationis* 31, no. 1 (2008): 28–37.

14. E. C. Isah, V. E. Omorogbe, O. Orji, and L. Oyovwe, "Self-Reported Absenteeism Among Hospital Workers in Benin City, Nigeria," *Ghana Medical Journal* 42, no. 1 (2008): 2–7.

15. S. Mostert, F. Njuguna, G. Olbara, et al., "Corruption in Health-Care Systems and Its Effect on Cancer Care in Africa," *Lancet Oncology* 16, no. 8 (2015): e394–e404, https://doi.org/10.1016/S1470-2045(15)00163-1.

16. G. Olbara, K. Handayani, I. Hoogland, et al., "Impact of Physician Dual Practices on a Pediatric-Oncology Outreach-Programhowever," *Asian Pacific Journal of Cancer Prevention* 24, no. 8 (2023): 2647–2651, https://doi.org/10.31557/APJCP.2023.24.8.2647.

17. H. Arksey and L. O'Malley, "Scoping Studies: Towards a Methodological Framework," *International Journal of Social Research Methodology* 8, no. 1 (2005): 19–32, https://doi.org/10.1080/1364557032 000119616.

18. M. J. Page, J. E. Mckenzie, P. M. Bossuyt, et al., "The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews," *Journal of Clinical Epidemiology* 134 (2021): 178–189, https://doi.org/10. 1016/j.jclinepi.2021.03.001.

19. R. Otten, R. de Vries, and L. Schoonmade, "Amsterdam Efficient Deduplication (AED) Method (Version 1)," *Zenodo* (2019). Amsterdam. Published online.

20. W. M. Bramer, D. Giustini, G. B. De Jonge, L. Holland, and T. Bekhuis, "De-Duplication of Database Search Results for Systematic Reviews in EndNote," *Journal of the Medical Library Association* 104, no. 3 (2016): 240, https://doi.org/10.5195/jmla.2016.24.

21. FOCUS, "Sub-Saharan Africa," *Open Knowledge Repository* (2024), accessed January 24, 2024, https://openknowledge.worldbank.org/pages/focus-sub-saharan-africa.

22. N. Chaudhury, J. Hammer, M. Kremer, K. Muralidharan, and F. H. Rogers, "Missing in Action: Teacher and Health Worker Absence in Developing Countries," *Journal of Economic Perspectives* 20, no. 1 (2006): 91–116, https://doi.org/10.1257/089533006776526058.

23. M. Lindelow and P. Serneels, "The Performance of Health Workers in Ethiopia: Results From Qualitative Research," *Social Science & Medicine* 62, no. 9 (2006): 2225–2235, https://doi.org/10.1016/j. socscimed.2005.10.015.

24. K. Gross, J. Armstrong Schellenberg, F. Kessy, C. Pfeiffer, and B. Obrist, "Antenatal Care in Practice: An Exploratory Study in Antenatal Care Clinics in the Kilombero Valley, South-Eastern Tanzania," *BMC Pregnancy and Childbirth* 11, no. 100967799 (2011): 36, https://doi.org/10.1186/1471-2393-11-36.

25. D. H. Mueller, D. Lungu, A. Acharya, and N. Palmer, "Constraints to Implementing the Essential Health Package in Malawi," *PLoS One* 6, no. 6 (2011): e20741, https://doi.org/10.1371/journal. pone.0020741.

26. F. Manzi, J. A. Schellenberg, G. Hutton, et al., "Human Resources for Health Care Delivery in Tanzania: A Multifaceted Problem," *Human Resources for Health* 10, no. 1 (2012): 3, https://doi.org/10.1186/1478-4491-10-3.

27. L. Ackers, E. Ioannou, and J. Ackers-Johnson, "The Impact of Delays on Maternal and Neonatal Outcomes in Ugandan Public Health Facilities: The Role of Absenteeism," *Health Policy and Planning* 31, no. 9 (2016): 1152–1161, https://doi.org/10.1093/heapol/czw046.

28. E. P. Allen, W. W. Muhwezi, D. K. Henriksson, and A. K. Mbonye, "Health Facility Management and Access: A Qualitative Analysis of Challenges to Seeking Healthcare for Children Under Five in Uganda," *Health Policy and Planning* 32, no. 7 (2017): 934–942, https://doi.org/10. 1093/heapol/czw180.

29. N. N. Nyamweya, P. Yekka, R. D. Mubutu, K. I. Kasozi, and J. Muhindo, "Staff Absenteeism in Public Health Facilities of Uganda: A Study in Bushenyi District on Contributing Factors," *Open Journal of Nursing* 07, no. 10 (2017): 1115–1130, https://doi.org/10.4236/ojn.2017. 710081.

30. R. Tweheyo, G. Daker-White, C. Reed, L. Davies, S. Kiwanuka, and S. Campbell, "Nobody Is After You; It Is Your Initiative to Start Work': A Qualitative Study of Health Workforce Absenteeism in Rural Uganda," *BMJ Global Health* 2, no. 4 (2017): e000455, https://doi.org/10. 1136/bmjgh-2017-000455.

31. K. Hausken and M. Ncube, "Service Delivery Versus Moonlighting: Using Data From Kenya, Uganda, Tanzania and Senegal," *African Development Review* 30, no. 2 (2018): 219–232, https://doi.org/10.1111/1467-8268.12327.

32. T. Fujii, "Regional Prevalence of Health Worker Absenteeism in Tanzania," *Health Economics* 28, no. 2 (2019): 311–316, https://doi.org/10.1002/hec.3844.

33. M. N. Mukasa, O. Sensoy Bahar, F. M. Ssewamala, et al., "Examining the Organizational Factors That Affect Health Workers' Attendance: Findings From Southwestern Uganda," *International Journal of Health Planning and Management* 34, no. 2 (2019): 644–656, https://doi. org/10.1002/hpm.2724.

34. O. Onwujekwe, A. Odii, P. Agwu, et al., "Exploring Health-Sector Absenteeism and Feasible Solutions: Evidence From the Primary Healthcare Level in Enugu, South East Nigeria," in *Anti-Corruption Evidence (ACE) Research Consortium. (September)*, (2019).

35. R. Tweheyo, C. Reed, S. Campbell, L. Davies, and G. Daker-White, "'I Have No Love for Such People, Because They Leave Us to Suffer': A Qualitative Study of Health Workers' Responses and Institutional Adaptations to Absenteeism in Rural Uganda," *BMJ Global Health* 4, no. 3 (2019): e001376, https://doi.org/10.1136/bmjgh-2018-001376.

36. K. Tumlinson, M. W. Gichane, S. L. Curtis, and K. LeMasters, "Understanding Healthcare Provider Absenteeism in Kenya: A Qualitative Analysis," *BMC Health Services Research* 19, no. 1 (2019): 660, https://doi.org/10.1186/s12913-019-4435-0.

37. B. Munyenyembe, Y. Y. Chen, and W. C. Chou, "The Moderating Role of Regulatory Institutional Environment in the Relationship Between Emotional Job Demands and Employee Absenteeism Likelihood of Healthcare Workers. Evidence From the Low-Income Country Context," *Frontiers in Psychology* 11, no. 101550902 (2020): 1052, https://doi.org/10.3389/fpsyg.2020.01052.

38. P. Agwu, P. Ogbozor, A. Odii, C. Orjiakor, and O. Onwujekwe, "Private Money-Making Indulgence and Inefficiency of Primary Healthcare in Nigeria: A Qualitative Study of Health Workers' Absenteeism," *International Journal of Public Health* 65, no. 7 (2020): 1019– 1026, https://doi.org/10.1007/s00038-020-01405-3.

39. O. Omwujekwe, "Influence of Social-Cultural Factors and Gender on Health Workforce Absenteeism: A Qualitative Study From Nigeria," *European Journal of Public Health* 30, no. Supplement_5 (2020): ckaa165.940, https://doi.org/10.1093/eurpub/ckaa165.940.

40. D. N. Obodoechi, O. Onwujekwe, M. McKee, et al., "Health Worker Absenteeism in Selected Health Facilities in Enugu State: Do Internal and External Supervision Matter?," *Frontiers in Public Health* 9 (2021): 752932, https://doi.org/10.3389/fpubh.2021.752932.

41. H. Zhang, G. Fink, and J. Cohen, "The Impact of Health Worker Absenteeism on Patient Health Care Seeking Behavior, Testing and Treatment: A Longitudinal Analysis in Uganda," *PLoS One* 16, no. 8 (2021): e0256437, https://doi.org/10.1371/journal.pone.0256437.

42. A. Odii, O. Onwujekwe, E. Hutchinson, et al., "Absenteeism in Primary Health Centres in Nigeria: Leveraging Power, Politics and Kinship," *BMJ Global Health* 7, no. 12 (2022): e010542, https://doi.org/10.1136/bmjgh-2022-010542.

43. P. Ogbozor, O. Onwujekwe, D. Balabanova, et al., "The Gendered Drivers of Absenteeism in the Nigerian Health System," *Health Policy and Planning* 37, no. 10 (2022): 1267–1277, https://doi.org/10.1093/heapol/czac056.

44. B. Angell, O. Onwujekwe, P. Roy, et al., "Designing Feasible Anti-Corruption Strategies in the Nigerian Health System: A Latent Class Analysis of a Discrete Choice Experiment," *World Development* 166 (2023): 106208, https://doi.org/10.1016/j.worlddev.2023.106208.

45. C. T. Orjiakor, O. Onwujekwe, M. McKee, E. Hutchison, P. Agwu, and D. Balabanova, "'I Can't Kill Myself': Local Narratives and Meanings That Foster Absenteeism in Nigerian Primary Health Centres," *Journal of Global Health* 13, no. 101578780 (2023): 04129, https://doi.org/10.7189/jogh.13.04129.

46. "(PDF) Is There a Doctor in the House? Medical Worker Absence in India," accessed January 31, 2024, https://www.researchgate.net/publication/228457745_Is_There_a_Doctor_in_the_House_Medical_Worker_Absence_in_India.

47. P. Mudaly and Z. Z. Nkosi, "Factors Influencing Nurse Absenteeism in a General Hospital in Durban," *Journal of Nursing Management* 23, no. 5 (2015): 623–631, https://doi.org/10.1111/jonm.12189.

48. O. Onwujekwe, P. Agwu, C. Orjiakor, et al., "Corruption in Anglophone West Africa Health Systems: A Systematic Review of Its Different Variants and the Factors That Sustain Them," *Health Policy and Planning* 34, no. 7 (2019): 529–543, https://doi.org/10.1093/ HEAPOL/CZZ070.

49. K. Z. Socha and M. Bech, "Physician Dual Practice: A Review of Literature," *Health Policy* 102 (2011): 1–7, https://doi.org/10.1016/j. healthpol.2010.10.017.

50. Cochrane Library Cochrane Database of Systematic Reviews Interventions to Manage Dual Practice Among Health Workers (Review)." Published online (2019), https://doi.org/10.1002/14651858.CD008405. pub2.

51. M. M. Davey, G. Cummings, C. V. Newburn-Cook, and E. A. Lo, "Predictors of Nurse Absenteeism in Hospitals: A Systematic Review," *Journal of Nursing Management* 17, no. 3 (2009): 312–330, https://doi.org/10.1111/j.1365-2834.2008.00958.x.

52. M. Dieleman, J. Toonen, H. Touré, and T. Martineau, "The Match Between Motivation and Performance Management of Health Sector Workers in Mali," *Human Resources for Health* 4, no. 1 (2006): 2, https://doi.org/10.1186/1478-4491-4-2.

53. S. Udho and A. Kabunga, "Burnout and Associated Factors Among Hospital-Based Nurses in Northern Uganda: A Cross-Sectional Survey," *BioMed Research International* 2022 (2022): 1–8, https://doi.org/10.1155/ 2022/8231564.

54. A. Kabunga and P. Okalo, "Prevalence and Predictors of Burnout Among Nurses During COVID-19: A Cross-Sectional Study in Hospitals in Central Uganda," *BMJ Open* 11, no. 9 (2021): e054284, https://doi.org/10.1136/bmjopen-2021-054284.

55. N. Naher, D. Balabanova, M. McKee, et al., "Absenteeism Among Doctors in the Bangladesh Health System: What Are the Structural Drivers?," *SSM - Qualitative Research in Health* 2 (2022): 100089, https://doi.org/10.1016/j.ssmqr.2022.100089.

56. A. García-Prado and M. Chawla, "The Impact of Hospital Management Reforms on Absenteeism in Costa Rica," *Health Policy and Planning* 21, no. 2 (2006): 91–100. Published online, https://doi.org/10. 1093/heapol/czj015.

57. E. H. Glynn, "Corruption in the Health Sector: A Problem in Need of a Systems-Thinking Approach," *Frontiers in Public Health* 10 (2022): 910073, https://doi.org/10.3389/fpubh.2022.910073.

58. M. E. Kruk, A. D. Gage, T. Joseph, G. Danaei, S. García-Saisó, and J. A. Salomon, "Articles Mortality Due to Low-Quality Health Systems in the Universal Health Coverage Era: A Systematic Analysis of Amenable Deaths in 137 Countries," *Lancet* 392, no. 10160 (2018): 2203–2212. Published online, https://doi.org/10.1016/S0140-6736(18)31668-4.

59. M. Goldstein, J. G. Zivin, J. Habyarimana, C. Pop-Eleches, and H. Thirumurthy, "The Effect of Absenteeism and Clinic Protocol on Health Outcomes: The Case of Mother-To-Child Transmission of HIV in Kenya," *American Economic Journal: Applied Economics* 5, no. 2 (2013): 58–85, https://doi.org/10.1257/APP.5.2.58.

Appendix A

Klootwijk L—Absenteeism of Healthcare Workers in Primary Health in Sub-Saharan Africa: A Scoping Review—Addendum 1: Search Strategies (JCFK)

Search Strategy for OVID/Medline (4 December 2023)

1	"Absenteeism"/or (absen* or non-attendan* or nonattendan* or "not-present-on-dut*" or (leave adj3 (work or duty or shift*1)) or sick-leave*1 or care-leave*1).ti,ab,kf.	881,700
2	(((community or primary) adj3 (health* or clinic*1 or care) adj3 (worker*1 or professional*1 or nurse*1 or doctor*1 or practitioner*1 or officer*1 or aide*1 or personnel or staff*1 or therapist*1 or clinician*1 or assistant*1 or physician*1 or registrar*1)) or dispensar* or clinical-officer* or nursing-aide*1 or nurse-practitioner*1 or midwive*1 or midwife*1 or general- practitioner*1 or house-doctor*1 or community-nurse*1).ti,ab,kf.	152,086
3	exp "Sub-Saharan African People"/or exp "Africa South of the Sahara"/or (africa-south-of- the-sahara or angola* or angolese* or angolian* or benin* or botswan* or burkina-faso* or burundi* or cabo-verde* or cameroon* or cape-	406,814

verd* or central-africa* or chad or comoro* or

(Continues)

60. J. Njuguna, "Impact of Health Workers' Strike in August 2014 on Health Services in Mombasa County Referral Hospital, Kenya," *Journal of Health Care for the Poor and Underserved* 26, no. 4 (2015): 1200–1206, https://doi.org/10.1353/HPU.2015.0106.

61. H. S. Lu, B. X. Ho, and M. J. Jaime, "Corruption in Health Systems: The Conversation Has Started, Now Time to Continue It Comment on 'We Need to Talk About Corruption in Health Systems' Commentary Tracing Corruption to Its Source, Towards a Horizontal Rather Than Vertical Enforcement of Health Systems," *Kerman University of Medical Sciences* 9, no. 3 (2020): 128–132, https://doi.org/10.15171/ijhpm.2019.104.

62. Perlo J., Balik B., Swensen S., Kabcenell A., Landsman J., Feeley D. "IHI Framework for Improving Joy in Work." (2017).

63. C. A. R. M. H. Peiffer 2018. "Islands of Integrity"? Reductions in Bribery in Uganda and South Africa and Lessons for Anti-Corruption Policy and Practice," https://www.dlprog.org/publications/researchpapers/islands-of-integrity-reductions-in-bribery-in-uganda-and-southafrica-and-lessons-for-anti-corruption-policy-and-practice.

64. R. Huss, A. Green, H. Sudarshan, et al., "Good Governance and Corruption in the Health Sector: Lessons From the Karnataka Experience," *Health Policy and Planning* 26, no. 6 (2011): 471–484, https://doi.org/10.1093/heapol/czq080.

65. D. Pink, Drive: The Surprising Truth About What Motivates Us (United States: Penguin, 2011).

66. S. E. English, *Absenteeism in Healthcare: Identifying Gaps and Resources for Working Families* (Edmond, Oklahoma: University of Central Oklahoma, 2015).

(Continued)

	congo* or cote-d'ivoire* or djibouti* or east- africa* or eastern-africa* or eritre* or eswatini* or ethiopia* or gabon* or gambia* or ghan* or (guinea* not (guinea-pig* or papua)) or ivory- coast* or kenya* or lesotho* or liberia* or madagascar* or malaw* or mali or malian or malians or mauritan* or mauriti* or mocambiqu* or mozambiqu* or namibia* or (niger* not aspergillus-niger) or rhodesia* or	
	rwanda* or sao-tome* or senegal* or seychelle* or sierra-leone* or somalia* or south-africa* or southern-africa* or sub-saharan-africa* or sub- sahara-africa* or subsaharan-africa* or subsahara-africa* or sudan* or swaziland* or tanzan* or togo* or ugand* or west-africa* or western-africa* or zaire* or zambia* or zimbabw*).ti,ab,kf.	
4	1 and 2 and 3	229
5	"Developing Countries".sh,kf. or (africa or asia or caribbean or west-indies or south-america or latin-america or central-america).hw,kf,ti,ab. or (afghanistan or angola or armenia or armenian or bangladesh or benin or bhutan or bolivia or	1,323,650

or bangladesh or benin or bhutan or bolivia or burkina-faso or burkina-fasso or burundi or cambodia or central-african-republic or chad or comoros or congo or cote-d-ivoire or ivory-

(Continues)

coast or djibouti or egypt or el-salvador or eritrea or ethiopia or gambia or gaza or georgia or ghana or guatemala or guinea or guam or haiti or honduras or india or indonesia or kenva or kiribati or korea or kosovo or kyrgyzstan or lao-pdr or lesotho or liberia or madagascar or malawi or mali or mauritania or moldova or mongolia or morocco or mozambique or myanmar or myanma or nepal or nicaragua or niger or nigeria or pakistan or paraguay or philippines or philipines or phillipines or phillippines or rwanda or ruanda or sao-tome or senegal or sri-lanka or solomonislands or somalia or sudan or swaziland or tajikistan or tanzania or timor-leste or tokelau or togo or tuvalu or uganda or ukraine or uzbekistan or vanuatu or vietnam or viet-nam or west-bank or yemen or zambia or zimbabwe).hw,kf,ti,ab. or ((developing or (less* adj developed) or under-developed or underdeveloped or middle-income or (low* adj income) or underserved or under-served or deprived or poor*) adj (countr* or nation? or population? or world)).ti,ab,kf. or ((developing or (less* adj developed) or under-developed or underdeveloped or middle-income or (low* adj income)) adj (economy or economies)).ti,ab,kf. or (low* adj (gdp or gnp or gross domestic or gross-national)).ti,ab,kf. or (low adj3 middle adi3 countr*).ti.ab.kf. or (lmic or lmics or third world or lami-countr*).ti,ab,kf. or transitionalcountr*.ti,ab,kf. or ((high-burden or countdown) adj countr*).ti,ab,kf. 7 exp "Primary Health Care"/or exp "Health 972,747 Personnel"/or (primary-health* or healthcareworker*1 or health-care-worker*1 or healthcare-professional* or health-careprofessional*1 or community-health* or primary-health* or periferal-health* or primary-care).ti,ab,kf.

8	(1 and 7 and (3 or 5)) not (4 or 6)	1420
9	4 or 8	1649

Search Strategy for Embase.com (21 December 2023)

No.	Query	Results
#8	#6 NOT #7	1120
#7	#6 AND ('Conference Abstract'/it OR 'Conference Review'/it OR 'Editorial'/it OR 'Letter'/it OR 'Note'/it)	485
#6	#1 AND #4 AND #5	1605
		(Continues)

No.	Query	Results
#5	'sub-saharan african'/exp OR 'africa south of the sahara'/exp OR 'africa south of the sahara':ti,ab,kw OR angola*:ti,ab,kw OR angolese*:ti,ab,kw OR angolian*:ti,ab,kw OR benin*:ti,ab,kw OR botswan*:ti,ab,kw OR 'burkina faso*':ti,ab,kw OR burundi*:ti,ab, kw OR 'cabo verde*':ti,ab,kw OR cameroon*: ti,ab,kw OR 'cape verd*':ti,ab,kw OR central africa*':ti,ab,kw OR chad:ti,ab,kw OR comoro*:ti,ab,kw OR congo*:ti,ab,kw OR 'cote d ivoire*':ti,ab,kw OR djibouti*:ti,ab,kw OR 'east africa*':ti,ab,kw OR djibouti*:ti,ab,kw OR 'east africa*':ti,ab,kw OR eswatini*:ti, ab,kw OR eritre*:ti,ab,kw OR gabon*:ti, ab,kw OR gambia*:ti,ab,kw OR gabon*:ti, ab,kw OR gambia*:ti,ab,kw OR gabon*:ti, ab,kw OR gambia*:ti,ab,kw OR ghan*:ti,ab, kw OR (guinea*:ti,ab,kw OR ghan*:ti,ab, kw OR (guinea*:ti,ab,kw OR ghan*:ti,ab, kw OR (ngunea*:ti,ab,kw OR ghan*:ti,ab, kw OR (ngunea*:ti,ab,kw OR malaw*:ti,ab,kw OR lesotho*:ti,ab,kw OR malaw*:ti,ab,kw OR madagascar*:ti,ab,kw OR malaw*:ti,ab,kw OR malians:ti,ab,kw OR malian:ti,ab,kw OR malians:ti,ab,kw OR malian:ti,ab,kw OR malians:ti,ab,kw OR mocambiqu*:ti,ab,kw OR mozambiqu*:ti,ab,kw OR namibia*:ti,ab, kw OR (niger*:ti,ab,kw OR namibia*:ti,ab,kw OR senegal*:ti,ab,kw OR sootome*':ti,ab,kw OR 'sierra leone*':ti,ab,kw OR somalia*:ti,ab,kw OR 'subsaharan africa*':ti,ab,kw OR 'southern africa*':ti,ab,kw OR sudan*:ti,ab,kw OR 'subsaharan africa*':ti,ab,kw OR	471,192
#4	#2 OR #3	2.352.375
#3	'primary health care'/exp OR 'health care personnel'/exp OR 'healthcare worker*':ti,ab, kw OR 'health care worker*':ti,ab,kw OR 'healthcare professional*':ti,ab,kw OR 'health care professional*':ti,ab,kw OR 'community health*':ti,ab,kw OR 'primary health*':ti,ab, kw OR 'periferal health*':ti,ab,kw OR 'primary care':ti,ab,kw	2,308,772
#2	'general practitioner'/exp OR (((community OR primary) NEAR/3 (health* OR clinic* OR care) NEAR/3 (worker* OR professional* OR nurse* OR doctor* OR practitioner* OR officer* OR aide* OR personnel OR staff* OR therapist* OR clinician* OR assistant* OR	267,176

No.	Query	Results
	physician* OR registrar*)):ti,ab,kw) OR dispensar*:ti,ab,kw OR 'clinical officer*':ti, ab,kw OR 'nursing aide*':ti,ab,kw OR 'nurse practitioner*':ti,ab,kw OR midwive*:ti,ab,kw OR midwife*:ti,ab,kw OR 'general practitioner*':ti,ab,kw OR 'house doctor*':ti, ab,kw OR 'community nurse*':ti,ab,kw	
#1	'absenteeism'/exp OR absen*:ti,ab,kw OR 'non attendan*':ti,ab,kw OR nonattendan*:ti, ab,kw OR 'not-present-on-dut*':ti,ab,kw OR ((leave NEAR/3 (work OR duty OR shift*)): ti,ab,kw) OR 'sick leave*':ti,ab,kw OR 'care leave*':ti,ab,kw	1,162,907

Search Strategy for Elsevier/Scopus (21 December 2023)

History		
count	Search terms	Results
4	#1 AND #2 AND #3	858
3	TITLE-ABS-KEY (africa-south-of-the-	1,013,274
	sahara OR angola* OR angolese* OR	
	angolian* OR benin* OR botswan* OR	
	burkina-faso* OR burundi* OR cabo-	
	verde* OR cameroon* OR cape-verd*	
	OR central-africa* OR chad OR	
	comoro* OR congo* OR cote-d-ivoire*	
	OR djibouti* OR east-africa* OR	
	eastern-africa* OR eritre* OR eswatini*	
	OR ethiopia* OR gabon* OR gambia*	
	OR ghan* OR ((guinea*) AND NOT	
	(guinea-pig* OR papua)) OR ivory-	
	coast* OR kenya* OR lesotho* OR	
	liberia* OR madagascar* OR malaw*	
	OR mali OR malian OR malians OR	
	mauritan* OR mauriti* OR	
	mocambiqu* OR mozambiqu* OR	
	namibia* OR ((niger*) AND NOT	
	(aspergillus-niger)) OR rhodesia* OR	
	rwanda* OR sao-tome* OR senegal*	
	OR seychelle* OR sierra-leone* OR	
	somalia* OR south-africa* OR	
	southern-africa* OR sub-saharan-	

(Continues)

(Continued)

History count	Search terms	Results
	africa* OR sub-sahara-africa* OR subsaharan-africa* OR subsahara- africa* OR sudan* OR swaziland* OR tanzan* OR togo* OR ugand* OR west- africa* OR western-africa* OR zaire* OR zambia* OR zimbabw*)	
2	TITLE-ABS-KEY (((community OR primary) W/3 (health* OR clinic* OR care) W/3 (worker* OR professional* OR nurse* OR doctor* OR practitioner* OR officer* OR aide* OR personnel OR staff* OR therapist* OR clinician* OR assistant* OR physician* OR registrar*)) OR dispensar* OR clinical-officer* OR nursing-aide* OR nurse-practitioner* OR midwive* OR midwife* OR general-practitioner* OR house-doctor* OR community-nurse* OR primary-health* OR healthcare- worker* OR health-care-worker* OR healthcare-professional* OR health- care-professional* OR community- health* OR primary-health* OR	680,528
1	TITLE-ABS-KEY (absen* OR non- attendan* OR nonattendan* OR "not- present-on-dut*" OR (leave W/3 (work OR duty OR shift*)) OR sick-leave* OR care-leave*)	1,527,575

Search Strategy for Africa Index Medicus (21 December 2023)

(tw:((absen* OR non-attendan* OR nonattendan* OR "not-present-ondut*" OR (leave AND (work OR duty OR shift*)) OR sick-leave* OR care-leave*))) AND (tw:(((community OR primary) AND (health* OR clinic* OR care) AND (worker* OR professional* OR nurse* OR doctor* OR practitioner* OR officer* OR aide* OR personnel OR staff* OR therapist* OR clinical-officer* OR nursing-aide* OR nurse-practitioner* OR midwive* OR midwife* OR general-practitioner* OR house-doctor* OR community-nurse* OR primary-health* OR healthcare-worker* OR health-care-worker* OR healthcare-professional* OR health-care-professional* OR community-health* OR primary-health* OR periferalhealth* OR primary-care)).

of references found: 39.