Can health workforce management actions positively influence retention and attrition of health workers? A study on human resources for health in the Eastern Region of Ghana

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Dekan

To Martina and Levin Leonidas

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ABBREVIATIONS

ADHA	Additional Duty Hour Allowance
ANC	Antenatal Care
BMC	Budget Management Centre
CHAG	Christian Health Association of Ghana
CHN	Community Health Nurse
CHPS	Community-based Health Planning and Services
CI	Confidence Interval
CRT	Country Research Team
DCE	District Chief Executive
DDHS	District Director of Health Services
DHA	District Health Administration
DHIMS	District Health Information System
DHM	District Health Manager
DHMT	District Health Management Team
EPI	Expanded Programme on Immunisation
GDP	Gross Domestic Product
GHS	Ghana Health Service
GoG	Government of Ghana
HR	Human Resources
HRH	Human Resources for Health
HRM	Human Resource Management
HRMS	Human Resource Management System
HS	Health System
IDI	In-Depth Interview
IGF	Internally Generated Funds
IPPD	Integrated Personnel and Payroll Database
JDI	Job Descriptive Index
LMICs	Low- and Middle-Income Countries

LSTM	Liverpool School of Tropical Medicine
MDGs	Millennium Development Goals
MJS	Measure of Job Satisfaction
MoH	Ministry of Health of Ghana
NDC	National Democratic Congress
NPP	New Patriotic Party
OR	Odds Ratio
RDHS	Regional Director of Health Services
RHA	Regional Health Administration
RHMT	Regional Health Management Team
SDGs	Sustainable Development Goals
SHDT	Sub-District Health Team
WHO	World Health Organization

SUMMARY

Background

The world faces a global shortage of well-trained health workers, which is considered as one of the biggest barriers to quality health-care services for millions of people throughout the world. Although the health workforce crisis affects virtually all countries worldwide, sub-Saharan Africa and parts of Asia are most affected, as these regions have the lowest health worker densities when compared globally and are also strongly affected by poor attraction and retention as well as high attrition of health professionals. These problems are exacerbated in rural and remote areas, as health workers tend to stay in or migrate to the urban centres, leaving the countryside in short supply and consequently with insufficient health service coverage. A solution to these problems usually propagated is to train more health workers. In the light of a high degree of population aging and increasing numbers of chronic and degenerative diseases in the high-income countries as well as increasing population growth rates and unresolved infectious disease agendas in the low and middle-income countries it will be undoubtedly essential to massively scale up the number of existing health workers. However, because of the time lag in training new staffs, high training costs, and the difficulties in attracting sufficient numbers of health workers to rural and remote areas, human resources for health deficits must also be addressed by improving the effectiveness and performance of the existing and future health workers through improved retention, competence and productivity.

An effective and well-performing health workforce depends on appropriate human resource management (HRM) policies and practices. Decentralisation is seen as beneficial to HRM, as it involves a transfer of resources, authority and responsibilities from a central authority to agencies in the institutional and geographic periphery. By taking into account their local situations, these measures allow district health management teams (DHMTs) to better address human resource (HR) issues, such as a maldistribution of staff or poor workforce performance, that are often inadequately addressed by a centralised system. Although there has been some research on HRM in decentralised health systems, little is known on which

HRM strategies to improve the performance of the health workforce are most appropriate in which contexts and how these strategies might have modifying effects on other parts of the health system. The PERFORM intervention program "Supporting decentralised management to improve health workforce performance in Ghana, Uganda and Tanzania" has contributed to fill these research gaps. This Ph.D. thesis is an integral part of PERFORM. While PERFORM studied the effects of its research methodology on DHMT management practices as well as the effects of the implemented human resource and health system strategies on workforce performance and health systems, the results generated by this thesis contributed to the understanding on how, in general, DHMT management practices affect health workforce performance with respect to retention and attrition.

Methods

In order to study the effects of district health management practices on health workforce retention and attrition, the motivation framework of Franco et al. was employed in this thesis. According to the framework, motivational processes are affected by determinants of motivation and mediated into the major motivational outcomes job satisfaction, performance and turnover. Concerning the determinants we were mainly interested in organisational determinants such as salary conditions, career development opportunities, and supervision, although also individual determinants were considered such as age, profession, and district as the place of work. We determined how district health management practices influence satisfaction of health workers in these areas and, in turn, how satisfaction with these organisational determinants affects health worker turnover.

The studies for this Ph.D. thesis were carried out in three districts of the Eastern Region in Ghana by using a mixed-methods approach consisting of two quantitative and one qualitative study. Data was collected during three research visits between May 2012 and July 2014 covering 13 months in total. The first study was a qualitative study on DHMT efficiency, which aimed to identify factors resulting in inefficient district health management practices. The second study was an explorative study that investigated current DHMT time use practices by doing daily retrospective time use interviews with all 21 district health managers in the districts over a three-month study period. In order to explore health worker job satisfaction and their effects on turnover and to also identify how district health managers may improve health workforce retention, 256 clinical health workers from several staff categories (doctors, nursing professionals, allied health workers, and pharmacists) were interviewed for the third

study by employing a cross-sectional study design. Given the design of this study with only one measurement in time, turnover intention was used as a proxy of turnover.

Results

The first study used the leadership and management strengthening framework of the World Health Organisation for the analysis of the results. The findings suggest that the efficiency of district health managers was constrained, because of limitations in all four dimensions of the framework (i.e. adequate numbers of managers, appropriate competencies, functional support systems, enabling environment). A key factor for inefficient district health management practices was human resource shortages in the district health administrations. This led to the neglect of important district health managing functions, especially in HRM. In addition, managers lacked sufficient planning, communication, and time management skills, which was exemplified by the difficulties of district health managers to develop weekly DHMT work plans that contribute to reaching annual goals according to their district annual action plan. DHMT efficiency was also greatly affected due to problems of cash flow from the national level to the district level often resulting in managers' inability to carry out planned work tasks in time. The study also confirmed findings from other studies that district health managers in Ghana have only a narrow decision space in their activities that limits their ability to influence decision-making. This was found to be a source of inefficiencies in district health management, because frequent demands from the higher levels contributed to the difficulties to meet deadlines of routine DHMT activities.

The second study investigated time allocation and time use practices of district health managers in Ghana. Overall 1182 work days of 21 district health managers were recorded over a period of three months. District health managers allocated with 16.6% the highest proportion of their working time to data management, followed by attending workshops with 12.3%, monitoring with 9.8%, travelling with 9.6%, and attending meetings and receiving visitors with 8.5% of their time. With 1.3%, HRM activities constituted only a fraction of the work time, which was due to the vacancies of HR managers in all three study DHMTs. However, other HR functions, especially training and supervision of health workers, were with 7.1% and 6.6%, respectively, considerably higher. The higher proportions in these activities were explained by the two immunisation campaigns that were carried out in the districts during the study period, which required district health managers to train health personnel in the sub-districts before and supervise them during the campaigns. The vertical

program also proved to be the main reason for the high variability in the proportions of time allocated to activities over the weeks, especially in training, supervision, monitoring, data management, and drugs and supply management.

The third study investigated the role of motivation and job satisfaction for retention of health workers in the PERFORM study districts. Health workers achieved an overall motivation mean score of 3.65 and an overall job satisfaction mean score of 3.15 out of a possible maximum of 5 for both scores. With regard to the motivational determinants, satisfaction with remuneration, career development, management, and the work environment were lowest, all reaching mean scores below 3. Determinants such as general motivation, organisational commitment, and satisfaction with workload, in-service training, and supervision all received a neutral response. The only determinants which health workers regarded as positive were intrinsic job satisfaction, timeliness and attendance, and conscientiousness. Overall, a high 69% of the respondents reported having turnover intentions. Among the motivational determinants associated with turnover intention were organisational commitment, and satisfaction with management, career development, workload, tasks, and morale.

Discussion and conclusion

Several of the identified low satisfaction outcomes were associated with the low percentage of time district health managers allocate to HRM as a result of the vacancies of HR officers in all studied district health administrations. Therefore, HR functions such as maintaining the district's HR database, organising in- and out-transfers, promotions, and counselling of sub-district health staff are carried out by DHMT members without prior knowledge and skills in HRM. In addition, it was shown that DHMT members are prioritising their core management duties and are thus neglecting tasks they carry out in addition to these duties, including HRM activities, with the result that the completion of such activities often delay considerably. It is likely, therefore, that delays resulting from errors and neglect add to the negative motivational outcomes, especially concerning dissatisfaction with career development and management. Financial shortages in the DHAs are a major underlying reason for several of the low job satisfaction outcomes, as they lead to the inability to provide financial incentives to health staff, do regular maintenance of buildings and equipment, and to equip health facilities with all necessary basic supplies. Although district health managers stated to frequently lack funds to carry out supportive supervision and in-service training, we have shown that such activities are frequently conducted in the frame of vertical programs, which was reflected in higher

health worker satisfaction in these areas. However, our findings suggest that the majority of supervision and in-service training activities are not conducted in response to knowledge gaps of health workers and as career development measures, but rather to achieve programme specific objectives.

In congruence with the motivation framework of Franco et al., the results presented in this thesis confirm the relationship between motivational determinants, job satisfaction and turnover. The results also suggest that district health management actions can influence health worker motivation. However, financial and human resource shortages are both problems, which must be solved at national level. Nonetheless, the PERFORM management intervention program has shown that improved planning, team-building, and supervision as well as more focused in-service training and delegation of tasks to lower-level cadres are all factors that can be achieved also without additional resources. These findings suggest that district health managers can improve motivation also under difficult conditions in resource-constraint health systems, thereby improving health worker retention and attrition outcomes.

ZUSAMMENFASSUNG

Einführung

Die Welt befindet sich in einer globalen Krise von gut ausgebildeten Humanressourcen im Gesundheitsbereich, welche als die grösste Barriere zu einer hochwertigen medizinischen Versorgung für Millionen von Menschen auf der ganzen Welt bezeichnet wird. Obwohl der Gesundheitspersonalmangel nahezu alle Länder weltweit betrifft, sind sub-Sahara Afrika und Teile von Asien am meisten von der Krise betroffen, weil diese Regionen im globalen Vergleich die geringste Dichte an Gesundheitsmitarbeitern aufweisen und zudem stark unter einer geringen Anziehungskraft und Verbleibquote und einer hohen Fluktuation des Gesundheitspersonals leiden. Diese Probleme sind verstärkt in ländlichen und entlegenen Gebieten anzutreffen, weil Gesundheitsarbeiter dazu neigen, in den Stadtzentren zu bleiben oder dorthin zu migrieren und somit die ländlichen Gebiete unter verstärktem Personalmangel und einer unzureichenden medizinischen Versorgung leiden. Um diese Probleme zu lösen wird regelmässig auf die Ausbildung von zusätzlichem Personal verwiesen. Mit Blick auf die starke Bevölkerungsüberalterung und eine steigende Verbreitung von chronischen und degenerativen Erkrankungen in den Industriestaaten und dem Bevölkerungszuwachs sowie die ungelösten Probleme hinsichtlich Infektionskrankheiten in den einkommensschwächeren Ländern ist es ohne Zweifel notwendig die Anzahl des vorhandenen Gesundheitspersonals stark zu erweitern. Jedoch müssen Personaldefizite aufgrund der Zeitverzögerung in der Ausbildung von neuem Personal und der Schwierigkeit ausreichend viele Gesundheits-arbeiter für eine Arbeitsstelle in ländlichen und abgelegenen Gebieten zu begeistern auch durch eine Verbesserung der Effektivität und Performanz des bestehenden und zukünftigen Gesundheitspersonals angegangen werden, indem die Verbleibquote, Kompetenz und Produktivität des Personals verbessert wird.

Eine effektive und leistungsfähige Arbeiterschaft im Gesundheitswesen hängt von einer geeigneten Politik und Praktiken hinsichtlich des Personalmanagements ab. Die Dezentralisierung wird im Allgemeinen als förderlich für das Personalmanagement angesehen, weil diese den Transfer von Ressourcen, Befugnissen und Verantwortung von der

zentralen Behörde an jene der institutionellen und geografischen Peripherie nach sich zieht. Unter Einbezug der lokalen Gegebenheiten erlauben diese Massnahmen den Distriktgesundheitsmanagementteams (DGMTs) Personalprobleme besser zu bewältigen, wie zum Beispiel eine Fehlverteilung oder eine mangelhafte Performanz des Gesundheitspersonals, welche von einem zentralisierten Gesundheitssystem häufig nur unzureichend bewältigt werden können. Obwohl bereits über Personalmanagement in dezentralisierten Gesundheitssystemen geforscht wurde, ist bislang nur wenig darüber bekannt, welche Personalmanagement-Strategien in welchen Kontexten am besten dazu geeignet sind, die Performanz des Gesundheitspersonals zu verbessern und wie sich diese Strategien modifizierend auf andere Teile des Gesundheitssystems auswirken. Das PERFORM Interventionsprogramm „Supporting decentralised management to improve health workforce performance in Ghana, Uganda and Tanzania“ hat dazu beigetragen diese Forschungslücke zu schliessen. Diese Dissertation ist ein integraler Bestandteil von PERFORM. Während PERFORM sowohl die Auswirkungen der angewendeten Forschungsmethoden auf DGMT-Management-Handlungen als auch die Auswirkung der implementierten Personal- und Gesundheitssystem-Strategien auf die Performanz des Gesundheitspersonals untersucht hat, tragen die Ergebnisse dieser Doktorarbeit zu dem Verständnis bei, wie sich, im Allgemeinen, DGMT-Management-Handlungen auf die Performanz des Gesundheitspersonals auswirken, insbesondere in Bezug auf deren Verbleibquote und Fluktuation.

Methoden

Um die Auswirkungen der Distriktgesundheitsmanagement-Aktivitäten auf die Fluktuation des Gesundheitspersonals zu untersuchen, wurde in dieser Dissertation das Motivations-Framework von Franco et al. angewendet. Gemäss dieses Frameworks werden die Motivationsprozesse von Motivations-Determinanten beeinflusst, welche in die wesentlichen Motivations-Auswirkungen Jobzufriedenheit, Performanz, und Fluktuation umgewandelt werden. Hinsichtlich der Determinanten waren wir hauptsächlich an den organisatorischen Determinanten interessiert, welche zum Beispiel Gehaltsbedingungen, berufliche Entwicklungsmöglichkeiten und Supervision darstellen, obwohl individuelle Determinanten wie Alter, Beruf, und der Distrikt des gegenwärtigen Arbeitsplatzes auch berücksichtigt wurden. Es wurde untersucht, wie Distriktgesundheitsmanagement-Aktivitäten die Zufriedenheit des Gesundheitspersonals in diesen Bereichen beeinflussen und wie sich

Zufriedenheit mit den organisatorischen Determinanten auf die Fluktuation des Personals auswirkt.

Die Studien für diese Dissertation wurden in drei Distrikten der Ostregion in Ghana durchgeführt. Hierzu wurde ein Methoden-Mix-Ansatz bestehend aus zwei quantitativen und einer qualitativen Studie gewählt. Daten wurden während dreier Forschungsaufenthalte zwischen Mai 2012 und Juli 2014 erhoben, welche insgesamt 13 Monate umfassten. Die erste Studie war eine qualitative Studie über die Effizienz der DGMTs, welche das Ziel hatte Faktoren zu identifizieren, die zu ineffizienten Distriktgesundheitsmanagement-Praktiken führen. Die zweite Studie war eine explorative Studie, welche die gegenwärtigen Zeitverwendungspraktiken von DGMTs untersucht hat, indem tägliche retrospektive Zeitnutzungsinterviews mit allen 21 Distriktgesundheitsmanagern über einen Zeitraum von drei Monaten durchgeführt wurden. Um die Auswirkungen der Jobzufriedenheit des Gesundheitspersonals auf die Fluktuation zu bestimmen und um zu untersuchen, ob Distriktgesundheitsmanager diese durch ihre Aktivitäten verbessern können, wurden in der dritten Studie 256 klinische Gesundheitsarbeiter von mehreren Personalkategorien (Ärzte, Pflegekräfte, Pharmazeuten und Experten von verwandten Berufen im Gesundheitswesen) interviewt. Da die dritte Studie eine Querschnittsstudie mit nur einer Messung pro Studienteilnehmer war, wurde die Fluktuationsneigung stellvertretend für die Fluktuation als Variabel herangezogen.

Resultate

Für die Analyse der Resultate der ersten Studie haben wir das Führungs- und Management-verbesserungs-Framework der Weltgesundheitsorganisation verwendet. Die Resultate lassen darauf schliessen, dass die Effizienz der Distriktgesundheitsmanager aufgrund von Einschränkungen in allen vier Dimensionen des Frameworks beeinträchtigt wird (diese sind: eine ausreichende Anzahl von Managern, geeignete Kompetenzen, funktionierende Unterstützungssysteme und ein förderliches Umfeld). Ein wesentlicher Faktor für ineffiziente Distriktgesundheitsmanagement-Praktiken war ein Mangel an personellen Ressourcen in der Distriktgesundheitsverwaltung. Dies führte zu einer Vernachlässigung von wichtigen Distriktgesundheitsmanagement-Funktionen, insbesondere im Personalmanagement. Ausserdem wurden unzureichende Planungs-, Kommunikations- und Zeitmanagement-fähigkeiten festgestellt, welche anhand von Schwierigkeiten der Distriktgesundheitsmanager verdeutlicht wurden, wöchentliche DGMT Arbeitspläne zu erstellen, die dazu beitragen

sollen, die Jahresziele der Distrikte zu erreichen. Die Effizienz der DGMTs wurde auch aufgrund von akuten Cash-Flow-Problemen von der nationalen Ebene an die Distriktebene beeinträchtigt. Dies führte oft dazu, dass Manager geplante Arbeitsaufgaben nicht rechtzeitig durchführen konnten. Diese Studie hat zudem Ergebnisse von anderen Studien bestätigt, dass Distriktgesundheitsmanager in Ghana nur sehr geringe Entscheidungsbefugnisse für ihre Aktivitäten haben, welche ihre Fähigkeit, Entscheidungsprozesse zu beeinflussen, stark beeinträchtigt. Dies erwies sich als eine wichtige Ursache für Ineffizienzen im Distriktgesundheitsmanagement, weil regelmässige Forderungen von höheren Ebenen im Gesundheitssystem oft dazu beitrugen, wenn Deadlines für Routineaufgaben nicht eingehalten werden konnten.

In der zweiten Studie wurden sowohl die Zeiteinteilung als auch die Zeitverwendung von Distriktgesundheitsmanagern in Ghana untersucht. Insgesamt wurden 1182 Arbeitstage von 21 Distriktgesundheitsmanagern über einen Zeitraum von drei Monaten aufgezeichnet. Distriktgesundheitsmanager verwendeten mit 16.6% den höchsten Teil ihrer Arbeitszeit für das Datenmanagement, gefolgt von der Teilnahme an Workshops mit 12.3%, Monitoring mit 9.8%, Reisen mit 9.6% und der Teilnahme an Meetings bzw. dem Empfangen von Besuchern mit 8.5% ihrer Zeit. Personalmanagement-Aktivitäten spielten mit 1.3% der Arbeitszeit aufgrund der hohen Vakanzen von Human Ressource Managern in allen drei Studien-DGMTs nur eine untergeordnete Rolle. Jedoch wurden andere Human-Ressource-Funktionen, insbesondere die Ausbildung und Supervision von Gesundheitsmitarbeitern, mit 7,1% bzw. 6.6% deutlich öfter ausgeübt. Der höhere Anteil dieser Aktivitäten konnte durch die beiden Impfkampagnen erklärt werden, welche während der Datenerhebungen in den Studiendistrikten durchgeführt wurden. Dies erforderte von den Distriktgesundheitsmanagern einen erhöhten Trainingsaufwand von Gesundheitsmitarbeitern in den Unterdistrikten vor den Kampagnen und eine höhere Zeitaufwendung für die Supervision während diesen. Zudem konnte nachgewiesen werden, dass die erhöhte Variabilität in der Zeiteinteilung verschiedener Aktivitäten auch auf das vertikale Programm zurückzuführen war, insbesondere für Training, Supervision, Monitoring, Datenmanagement und dem Medikamenten- und Beschaffungsmanagement.

In der dritten Studie wurden die Auswirkungen der Motivation und der Jobzufriedenheit auf die Fluktuation der Gesundheitsmitarbeiter in den PERFORM Studiendistrikten untersucht. Gesundheitsmitarbeiter erzielten im Mittel eine Punktzahl von 3.65 für die Gesamtmotivation

und von 3.15 für die Gesamtjobzufriedenheit, wobei eine maximale Punktzahl von 5 für beide Werte erreicht werden konnte. In Bezug auf die Motivationsdeterminanten wurden die niedrigsten Punktzahlen in der Zufriedenheit mit dem Gehalt, der beruflichen Entwicklungsmöglichkeiten, dem Management und dem Arbeitsumfeld erreicht, die im Mittel jeweils eine maximale Gesamtpunktzahl von unter 3 erzielten. Andere Determinanten wie zum Beispiel die generelle Motivation, organisatorische Verpflichtung und Zufriedenheit mit der Arbeitsbelastung, der Fortbildung und der Supervision wurden von den Befragten neutral bewertet. Die intrinsische Jobzufriedenheit, Pünktlichkeit und Anwesenheit, und Pflichtbewusstsein waren die einzigen Determinanten, die als positiv bewertet wurden. Insgesamt gaben 69% der Befragten an eine Fluktuationsneigung zu haben. Zu den Motivationsdeterminanten, welche signifikant mit der Fluktuationsneigung verbunden waren, gehörten die organisatorische Verpflichtung und Zufriedenheit mit dem Management, den beruflichen Entwicklungsmöglichkeiten, der Arbeitsbelastung, den Arbeitsaufgaben und der Moral.

Diskussion und Schlussfolgerung

Die Ergebnisse dieser Dissertation lassen darauf schliessen, dass die geringe Zufriedenheit des Gesundheitspersonals in mehreren Bereichen auf den geringen Zeitanteil zurückzuführen ist, welche Distriktgesundheitsmanager im Personalmanagement aufwenden. Einen grossen Anteil an diesem Ergebnis haben hierbei die hohen Vakanzen von Human Ressource Managern in allen drei Distriktgesundheitsverwaltungen. Deshalb werden Human Ressource-Funktionen wie zum Beispiel die Pflege der Human-Ressource-Datenbank, das Organisieren von Transfers von Personal in die Distrikte und aus diesen heraus, Beförderungen und die Beratung von Gesundheitspersonal in den Unterdistrikten von Distriktgesundheitsmanagern ohne Kenntnisse und Fähigkeiten im Personalmanagement durchgeführt. Ausserdem wurde aufgezeigt, dass DGMT Mitglieder ihre Hauptarbeitsaufgaben priorisieren und jene Aufgaben vernachlässigen, die sie aufgrund des fehlenden Personals zusätzlich ausüben müssen, welche insbesondere das Personalmanagement betrifft. Dies führt des Öfteren dazu, dass solche Zusatzaufgaben stark verspätet erledigt werden. Daher ist es möglich, dass Verspätungen aufgrund von Fehlern und Vernachlässigungen bedeutend zu den negativen Resultaten im Bereich der Motivation beitragen, insbesondere in Bezug auf die Unzufriedenheit mit beruflichen Entwicklungsmöglichkeiten und dem Management. Auch finanzielle Engpässe in den Distriktgesundheitsverwaltungen sind oft der Grund für die Jobunzufriedenheit, weil diese dazu führen, dass keine finanziellen Anreize geschaffen werden können,

Instandhaltungsmassnahmen von Gebäuden und Gerätschaften nur unregelmässig durchgeführt werden und Gesundheitseinrichtungen nicht mit der nötigen Grundausstattung bestückt werden können. Obwohl Distriktgesundheitsmanager betont haben, dass Geldmittel für die Durchführung von unterstützenden Supervisionstätigkeiten und für Fortbildungsmassnahmen regelmässig fehlen, konnte in dieser Arbeit auch aufgezeigt werden, dass solche Aktivitäten oft im Rahmen von vertikalen Programmen durchgeführt werden, welches sich durch eine erhöhte Zufriedenheit seitens des Gesundheitspersonals in diesen Bereichen ausdrückt. Jedoch lassen unsere Resultate auch darauf schliessen, dass die Mehrheit der Supervisionstätigkeiten und Fortbildungsmassnahmen nicht etwa durchgeführt werden, um Kenntnislücken zu schliessen oder als berufliche Entwicklungsmassnahmen, sondern überwiegend um die spezifischen Ziele der vertikalen Programme zu erreichen.

In Übereinstimmung mit dem Motivations-Framework von Franco et al. bestätigen die Resultate dieser Dissertation die Beziehung zwischen Motivationsdeterminanten, Jobzufriedenheit und Fluktuationsneigung. Die Ergebnisse deuten zudem daraufhin, dass Distriktgesundheitsmanagement-Aktivitäten die Motivation von Gesundheitsarbeitern beeinflussen können. Obwohl finanzielle und personelle Engpässe nicht auf der Distriktebene gelöst werden können, hat die PERFORM Managementinterventionsstudie gezeigt, dass bessere Planung, Teambildung, Supervision, gezielte Fortbildungsmassnahmen und eine bessere Aufgabenverteilung an Untergebene auch ohne zusätzliche Ressourcen erreicht werden können. Dies bedeutet, dass Distriktgesundheitsmanager Motivation auch unter schwierigen Bedingungen in ressourcenbeschränkten Gesundheitssystemen verbessern und somit die Fluktuation verringern können.

1

Introduction

1.1. The global health workforce crisis

The world faces a global shortage of well-trained health workers, which is considered as one of the biggest barriers to quality health-care services for millions of people throughout the world (World Health Organization, 2008). It is estimated that there currently is a shortfall of approximately 7.2 million doctors, nurses and midwives and that this shortfall is likely to rise to at least 12.9 million in the coming decades (Sidibe and Campbell, 2015). Although the health workforce crisis affects virtually all countries worldwide – including the high-income countries – sub-Saharan Africa and parts of Asia are most affected, as these regions have the lowest health worker densities when compared globally and are also strongly affected by poor attraction and retention as well as high attrition of health professionals (Lehmann et al., 2008). These problems are exacerbated in rural and remote areas, as health workers tend to stay in or migrate to the urban centres, leaving the countryside in short supply and consequently with insufficient health service coverage (Joint Learning Initiative, 2004, Dussault and Franceschini, 2006, World Health Organization, 2006, Dal Poz, 2013).

In contrast to other sectors, the health sector is heavily dependent on people who provide health services to clients. Despite of this, over a long period of time attention and support to the health workforce was not accorded the needed priority, and emphasis was instead given to the provision of commodities, procurement of equipment, and the construction of health facilities. Especially in sub-Saharan Africa the health workforce was considered to be too

complicated and not sustainable for the international community to engage and was primarily left as the responsibility of national and local governments (Omaswa, 2014). The perception of the importance of human resources for health changed considerably in the past decade, not least owing to the Joint Learning Initiative (2004) that warned the world in its human resources for health report about 10 years ago that the Millennium Development Goals (MDGs) cannot be reached without adequately responding to health workforce needs, which was further highlighted by the World Health Organization (WHO, 2006) in their "World Health Report: working together for health".

In 2006 and mainly in response to these reports, the Global Health Workforce Alliance was launched, which brought together a wide spectrum of stakeholders across the world – most importantly national governments, international agencies, finance institutions, civil society, and researchers – as a common platform for identifying and implementing solutions to the health workforce crisis (Campbell et al., 2013). In the Kampala Declaration and Agenda for Global Action from 2008, the alliance agreed on six strategic areas of human resources for health development, which, besides scaling up the health workforce through education and training, also stressed the importance of retention of health workers through both financial and non-financial incentives as well as regulating the exodus of health professionals from the low and middle-income countries (LMICs) to high-income countries through a code of practice on the international recruitment of health workers. In addition, strengthening national governance and coordination frameworks as well as scaling up the financial basis for health workforce development was also agreed (Global Health Workforce Alliance, 2008b).

In September 2015, world leaders met to adopt a set of Sustainable Development Goals (SDGs), which are to replace the MDGs once those expire at the end of 2015. It is a major step towards overcoming the health workforce crisis that the SDGs recognise human resources for health as essential for reaching its health related development goal by calling for substantially intensified "recruitment, development, training and retention of the health workforce in developing countries" (United Nations, 2014). However, at the outset of the post-2015 era the health workforce crisis has the potential to become worse in the coming years. The high-income countries are facing an increase in the number of chronic and degenerative diseases due to population aging resulting in an increasing demand for healthcare, while at the same time low fertility rates induce a decline of the working-age population thus increasing the demand for health workers from abroad. High population

growth rates in the LMICs combined with unresolved infectious disease agendas and the rapid emergence of chronic diseases will also increase the demand for health care, while rapid urbanisation processes in these countries are likely to intensify already great health workforce shortages in rural areas (Dal Poz, 2013).

Because of these trends, it will be undoubtedly essential to massively scale up the number of existing health workers. However, because of the time lag in training new staffs, high training costs, and of the difficulties in attracting sufficient numbers of health workers to rural and remote areas, human resources for health deficits must also be addressed by improving the performance of the existing and future health workers through improved retention, distribution, and effectiveness (Dieleman et al., 2009, World Health Organization, 2010, Appiah-Denkyira et al., 2012a, Mshelia et al., 2013).

1.2. Human resources for health management in a decentralised context

An effective and well-performing health workforce depends on appropriate human resource management (HRM) policies and practices (Buchan, 2004, Liu et al., 2006). HRM is commonly described as the integrated use of systems, policies, and practices that provides the range of functions needed to plan, produce, deploy, manage, train, support, and sustain the workforce, and is understood as the process of facilitating and improving the performance of the workforce by building a conducive work environment and providing maximum opportunities to the collaborators for participating in the organisational planning and decision-making process (CapacityPlus, 2013, Mshelia et al., 2013).

Human resources (HR) constitute only one part of the health system, with health services; health information; medical products, vaccines and technologies; health financing; and leadership and governance being the other health system building blocks (World Health Organization, 2007a). De Savigny and Adam (2009) describe these building blocks as sub-systems of the health system that function together in a dynamic architecture of interactions and synergies, and – given the centrality of the health workforce to improving health services and population health outcomes – place HR at the centre of the system. Because of the interconnectedness and interactions among the health system building blocks, interventions in one block may have intended or unintended effects on the other health system building blocks. For instance, a pay-for-performance initiative in one area may lead to the neglect of other service delivery areas, because health personnel are distracted from their essential duties

(Mshelia et al., 2013). Due to such complex interactions between HRM strategies, the methods of implementation and the wider health system context, strong and integrated HRM is essential to the provision of an effective, enabled, and functional health system.

Decentralisation is seen as beneficial to HRM, as it involves a transfer of resources, authority and responsibilities from a central authority to agencies in the institutional and geographic periphery (Wang et al., 2002). By taking into account their local situations, these measures allow district health HR managers to better address HR issues, such as a maldistribution of staff or poor workforce performance, that are often inadequately addressed by a centralised system (Mitchell and Bossert, 2010). However, some studies have shown that a decentralised health system can also aggravate problems in HR, when HRM strategies are inappropriately used (Saide and Stewart, 2001, Liu et al., 2006). A recent study in Nigeria has also shown that such a system can also have negative effects on health worker retention. This study found that salaries in Nigeria were unregularly paid at peripheral level due to problems in the financial chain from the government level to the primary health care level, which resulted in health workers favouring the higher health system levels where salaries were paid more regularly and timely (Abimbola et al., 2015).

In countries with implemented health sector decentralisation policies, local and provincial health managers may have, as Bossert (2002) calls it, a broadened “decision space”, which refers to effective decision-making or range of choice within the various functions of finance, service organisation, human resources, targeting and governance. However, the amount of decision space depends on the level of decentralisation, which usually takes the form of deconcentration or delegation within an organisation or devolution to local government. Deconcentration is considered the weakest form and seeks to shift responsibilities from central government officials in the capital city to those working in regions, provinces or districts. Delegation is a more extensive form of decentralization, where central governments transfer responsibility for decision-making and administration of public functions to semi-autonomous organizations not wholly controlled by the central government, but ultimately accountable to it. When governments devolve functions, they transfer authority for decision-making, finance, and management to quasi-autonomous units of local government with corporate status. In a devolved system, local governments have clear and legally recognized geographical boundaries over which they exercise authority and within which they perform public functions (Prytherch et al., 2015).

1.3. The PERFORM HRM intervention program

This PhD project was conducted within the framework of the PERFORM HRM intervention program "Supporting decentralised management to improve health workforce performance in Ghana, Uganda and Tanzania". Although there has been some research on HRM in the health sector under decentralisation (see, for instance, Cassels and Janovsky, 1992, Saide and Stewart, 2001, Neilson and Smutylo, 2004, Liu et al., 2006, Dieleman et al., 2009, Kwamie et al., 2015), little is known on which HRM strategies to improve the performance of the health workforce are most appropriate in which contexts and how these strategies might have modifying effects on other parts of the health system. By using a wider health system approach and integrated "bundles" of HRM practices, PERFORM attempted to fill these research gaps (Mshelia et al., 2013). The concept of the PERFORM project is summarised in Figure 1.1.

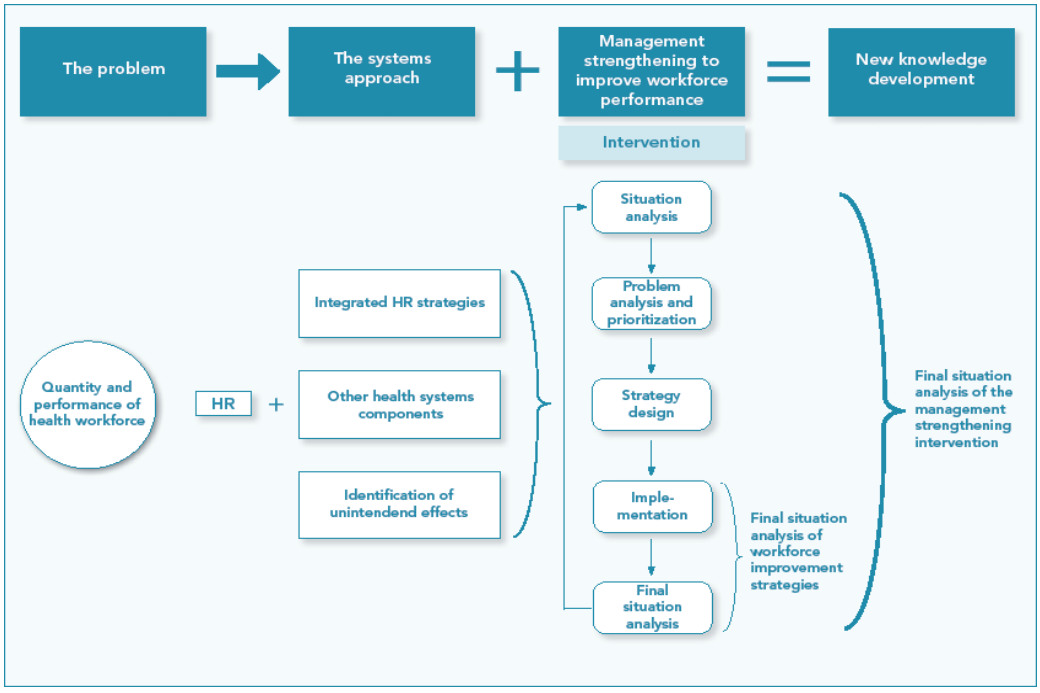

Figure 1.1. Concept of the PERFORM research project. Source: Prytherch et al. (2015).

The interventions for strengthening management at district level and for improving the performance of the health workforce were carried out by means of action research methodology. Action research is a form of group enquiry into a problem of common importance. Its aim is to improve practice and to generate knowledge about the processes and strategies that work best to create that improvement (Bradbury and Reason, 2003). The members of the district health management teams (DHMTs) in the three study districts of each of the three African countries were the action researchers during the course of the

project, who were supported by the PERFORM country research teams (CRTs) in the conduct of a situation analysis of the workforce problems, identification of appropriate local strategies to respond to these, implementation of such strategies and evaluation, leading where appropriate to a redesign of the strategies.

Current thinking on health systems strengthening suggests integration of health workforce strategies with the five other health system building blocks. The PERFORM researchers developed a "menu" of human resource/health system (HS) strategies (such as task-shifting, training, supervision and monitoring) that integrate these building blocks. Taking into account national and local HR and HS policies and practices already in place, the district health management teams (DHMTs) in the study districts developed "bundles" of HR/HS strategies that were selected from this menu with respect to their district's specific health workforce problems, and that were feasible within the context and affordable within the district's budget to strengthen priority areas of the performance of the health workforce. All strategies were assessed for potential unintended system effects and modified if necessary by convening and engaging stakeholders from each of the health system building blocks. At the end of the implementation phase the project evaluated the success of specific HR/HS bundles to improve district workforce performance and assessed the effectiveness of the use of action research in strengthening district management processes.

The studies conducted for this thesis were integral parts of the PERFORM intervention program. The aim of PERFORM was to understand how, and under which conditions, a management strengthening intervention can improve health workforce performance at district level. Performance was thereby understood as retention (and consequently attrition), distribution, and effectiveness (Prytherch et al., 2015). While PERFORM studied the effects of the action research approach on DHMT management practices as well as the effects of the implemented HR/HS strategies on workforce performance and health systems, the results generated by this thesis contributed to the understanding on how, in general, DHMT management practices affect health workforce performance with respect to retention and attrition.

1.4. Main concepts

As stated above, this thesis analyses the effects of DHMT management practices on health worker retention and attrition. Both concepts are related, because strategies successfully implemented to increase health worker retention, will necessarily also reduce attrition. In contrast, factors that lead to higher levels of health workforce attrition consequently entail a decreased retention of health workers if these factors are not adequately addressed. As will be illustrated in more detail in the following section, retention and attrition are both outcomes of health worker motivation and are usually related to job (dis-)satisfaction (Franco et al., 2002). For this reason these concepts are central to explain retention and attrition of health workers and the management of these (Willis-Shattuck et al., 2008, Lega et al., 2013). The studies conducted for this PhD thesis draw extensively on the concepts of attraction, retention, and attrition as well as health worker motivation and job satisfaction. In order to clarify how these concepts are understood in this thesis, they are briefly presented in this section.

1.4.1. Attraction

A major reason for the geographical imbalances in the health workforce is that certain areas attract more health workers than others. Health workers usually choose their workplace due to criteria such as remuneration, training opportunities, career development prospects, living and working conditions, workload, and access to additional income from private practice (Serneels et al., 2005, Campbell et al., 2013). It is therefore not surprising that health workers generally prefer the urban and affluent areas, which usually meet these criteria, to the rural areas, which often do not. Moreover, work in rural areas is often associated with low wages, career "death" due to professional isolation, problematic security situations, demanding working conditions, reduced access to training, and a lack of infrastructure and medical equipment (Lehmann et al., 2008, Kruk et al., 2010, Snow et al., 2011). For these reasons most countries, including the most developed ones, face challenges to increase health workers' willingness to practice in rural and underserved areas, and to achieve equitable access to quality health services (Huicho et al., 2010, Barriball et al., 2015).

In order to reduce geographical imbalances, many countries have developed and implemented interventions to improve attraction of health workers in rural and underserved areas, usually covering strategies with regard to education, regulatory and supportive interventions, and monetary and non-monetary incentives (Grobler et al., 2009, World Health Organization, 2010, Morell et al., 2014). Dolea et al. (2010) have conducted a systematic review on the

effectiveness of such interventions and found that the most promising strategies are to train students and select health professionals with rural backgrounds, to train students closer to rural communities, to include rural health issues in the curricula, and to provide monetary incentives to those health professionals who are willing to serve in rural areas over a period of time. Although the identified studies in the systematic review have been conducted in higher-income countries and addressed mostly attraction of physicians, recent research suggests that such strategies may also improve attraction in low and middle-income countries by targeting also other types of health workers (Ebuehi and Campbell, 2011, Munga et al., 2014, Efendi et al., 2015).

1.4.2. Retention

Retention is defined as the length of time a health worker actively performs appropriate health care tasks in a health facility (Bhattacharyya et al., 2001) and is usually measured by length of service, proportion of health workers in rural areas, turnover rates or survival rates (Dolea et al., 2010). It was suggested that the uneven distribution of health workers has more to do with retention than with attraction, because health practitioners in rural and underserved areas face higher workloads, unsustainable work environments and professional isolation causing them to leave the workplace in search of more satisfactory working conditions in urban areas or abroad (OReilly, 1997, World Health Organization, 2010). However, retention must not be regarded in isolation from attraction, as factors that attract health workers to rural areas are often similar to those that retain them there (Dussault and Franceschini, 2006).

There is empirical evidence for the relationship between health worker job dissatisfaction, lack of motivation and retention (Hasselhorn et al., 2003, Rouleau et al., 2012, Bonenberger et al., 2014). For this reason many management interventions directly or indirectly aim at improving motivation and job satisfaction of health workers in order to tackle retention problems in rural and remote areas (Zurn et al., 2005, Dussault and Franceschini, 2006, Mbemba et al., 2013). Remuneration and financial incentives are the most common approaches used to improve retention of the health workforce in these areas (Zurn et al., 2005). However, non-monetary incentives such as higher work autonomy, career development and shift work, as well as improving the living and working conditions of health workers have also proved useful to improve retention (Bhattacharyya et al., 2001, Dussault and Franceschini, 2006, World Health Organization, 2010, Mbemba et al., 2013). Dolea et al. (2010) have shown that these interventions are rarely implemented after a thorough analysis

of health workers' preferences of choice to practice in rural and remote areas, with the consequence that such interventions often have only limited success or fail. Providing a comprehensive situation analysis before implementing any intervention is therefore of great importance in order to successfully improve health worker retention.

In a qualitative study on factors leading to reduced attraction and retention of health professionals in remote areas of Ghana, Snow et al. (2011) identified fears of career 'death' and prolonged rural appointments as key determinants that kept health workers in urban centres, and, consequently, those asked proposed career development incentives, short-term posts and also salary top-ups to accept service in rural areas. By conducting a discrete choice experiment with fourth year medical students in Ghana, Kruk et al. (2010) provided further evidence that monetary and non-monetary incentives such as superior housing, utility cars, career development, and higher salaries can improve attraction and retention in rural areas. That increases in wage has the potential to reduce attrition of skilled health workers in Ghana has been shown by Antwi and Phillips (2011), although the authors stress that a positive effect were found only among workers with plans to migrate abroad and therefore concluded that wage increases in Ghana improve retention mainly through reducing international migration.

1.4.2.1. Motivation

Worker motivation can be defined as "an individual's degree of willingness to exert and maintain an effort towards organisational goals" (Franco et al., 2002: p.1255). It is a set of psychological processes that influences worker's allocation of personal resources towards those goals, which in turn affect workplace effectiveness and productivity. However, motivation is also a transactional process, as it is the result of the interactions between individuals and their work environment, and the fit between these interactions and the broader societal context (Franco et al., 2004). The concept of worker motivation is related to job satisfaction, as greater satisfaction with one's job often leads to higher levels of work commitment and willingness to expend personal resources for job accomplishments. As will be shown in the next section on motivation and job satisfaction theories, it would be misleading, however, to equate the two concepts, as job satisfaction is an outcome of motivation and thus not a prerequisite for motivation (Franco et al., 2002).

Within the health sector, poor motivation of health workers has been identified as a central problem in health service delivery (Dieleman et al., 2006, World Health Organization, 2010, Alhassan et al., 2013), and it was even claimed that it represents the second biggest health

workforce problem after staff shortages, as it negatively impacts on health worker performance, health facilities and the health system as a whole (Mathauer and Imhoff, 2006). Moreover, it is a substantial push factor for migration of health workers, both from rural areas to urban centres and abroad (Awases et al., 2004). According to a systematic review on motivation and retention in LMICs conducted by Willis-Shattuck et al. (2008) the key factors of health worker motivation include remuneration, career development, continuing education, infrastructure at the work place, resource availability, management, and personal recognition.

Although there has been research on motivation, there is a gap in the knowledge on how health management practices in developing countries impact on health worker motivation and retention. Most of the research to date also concentrated on only one type of health worker or on the health workforce as a whole, and therefore, there is little evidence on how motivational factors affect different cadres in a health system.

1.4.2.2. Job satisfaction

Job satisfaction has been identified as a key factor for health worker retention. As Lu et al. (2012) have pointed out, job satisfaction depends both on the nature of the job and on the expectations health workers have of what their job should provide, and is thus the affective orientation that employees have towards their work (Price, 2001). Job satisfaction can be regarded as a global feeling about the job or as a related constellation of attitudes about various aspects or facets of the job (Lu et al., 2005). Studies conducted in recent years suggest that key factors of job satisfaction include remuneration, work environment, workload, work relations, professional development, organisational commitment, and management (Rouleau et al., 2012, Blaauw et al., 2013, Ali Jadoo et al., 2015). The similarity of these factors to those of motivation indicates the relationship of both concepts.

The impact of job satisfaction upon health worker performance, retention and attrition has been explored in a number of research studies (see, for instance, Murrells et al., 2008, Rosen et al., 2011, Zhang and Feng, 2011, Fogarty et al., 2014). However, most of the research has to date concentrated on high-income countries. For this reason, there is lack of knowledge on the sources of job satisfaction, its effects and the related factors affecting job satisfaction in LMICs – most notably in Africa (Rouleau et al., 2012). Little is also known on how district health managers in resource-constrained health systems can effectively address issues of job satisfaction in order to increase retention and reduce attrition of their health workforce.

1.4.3. Attrition

A key contributor to the human resources crisis in the health sector is attrition of the health workforce. Attrition is often defined as a complete loss of health personnel to the health sector and is usually measured by the number of health workers who permanently leave their posts (Dovlo, 2005, Chankova et al., 2009). Attrition also implies the loss of health workers from the public to the private sector or from rural to urban areas within a country or between countries (Awases et al., 2004, Joint Learning Initiative, 2004, World Health Organization, 2006, Sheikh et al., 2012). However, although the mobility of health personnel contributes to attrition rates, it has enough specificities in terms of its determinants and of its modalities that it should be clearly differentiated from attrition (Dussault and Franceschini, 2006, Sheikh et al., 2012). Attrition of health workers is an expected factor in human resource management, as workers change jobs, retire, or die. However, if for any reason the rate of attrition is higher than normally expected, this may reflect a problem. For instance, if the attrition rate increases suddenly or changes significantly over time, a retention problem may be indicated. In the case of increased morbidity and mortality among the health staff, a health problem may be indicated (Dovlo, 2005). High attrition rates can substantially weaken the delivery and quality of care, as workload increases and non-qualified personnel may have to overtake tasks for which they have not been trained for (World Health Organization, 2006, Gao et al., 2014). Awases (2004) have also shown that high health worker turnover have negative effects on equity in access to health care, as marginal and disadvantaged rural areas are usually most affected by high health worker attrition, pushing the population to other means of health care, such as traditional healers and self-medication.

The patterns of health worker attrition rates often vary by types of cadre and health facility. This has been shown, for instance, in a study conducted by Chankova et al. (2009) on attrition in Kenya's public health sector, who found considerably higher attrition rates among doctors, pharmacy staff and laboratory staff than among clinical officers and nurses. When comparing attrition rates by type of facility for each cadre, the researchers found that attrition among clinical officers, laboratory staff and pharmacy staff was much higher in rural health centres than in district and provincial hospitals. Because the general assumption among researchers and policy-makers is that tertiary facilities tend to lose doctors at lower rates than lower-level facilities, a surprising finding was that provincial hospitals lost doctors at much higher rates than the district hospitals.

According to the WHO (2006) the main reasons why health workers leave their workplace are migration, risk of violence, illness or death, change of occupation or work status, and retirement. This is supported by Dovlo (2005), who conducted a literature review on attrition of the health workforce in sub-Saharan Africa. In compliance with the WHO, identified main reasons were retirement, death, dismissal and voluntary resignation by health workers who leave the public health sector to work in the private sector in the home country, or to emigrate to work in health facilities in richer countries. In a study conducted by the same author (Dovlo, 1999) on retention of the health workforce in four African countries, Dovlo found that voluntary resignation often represents the biggest share of lost health workers.

1.5. Theories on motivation and job satisfaction management

Motivation and job satisfaction have been identified as key factors of attrition and retention of the health workforce in LMICs (Willis-Shattuck et al., 2008, Rouleau et al., 2012, Blaauw et al., 2013), and both are central to explain health workforce turnover also in this thesis. Research on the management of worker motivation and job satisfaction has a long tradition and dates back to the beginning of the 20th century. In the course of the past 100 years numerous theories emerged of which some are still relevant for managers as well as researchers. In search of an appropriate theory to guide the research conducted for this thesis and to explain the potential influences district health management actions have on health worker attrition and retention by being mediated through motivation and job satisfaction, the most important theories were reviewed. In this section some of these theories are presented by highlighting their advantages and disadvantages in order to be in the position to make an informed decision for selecting the most relevant framework for this thesis.

1.5.1. Scientific management

Behind the background of an increasing industrial age, early researchers focused their attention on the inefficiencies of factory production. Such studies are summarised under the term “scientific management”, which emphasised research for developing a comprehensive solution in order to increase productivity and efficiency of an organisation. Having had a rather paternalistic approach, workers were supposed to be incapable of understanding what they were doing and thus, proponents of this school saw managers as primarily responsible for reaching productivity and efficiency gains (Steers et al., 2004). Frederick W. Taylor (1911), who is regarded as the father of scientific management, believed that the basic motivating principle for workers was money or wages, as workers were assumed to be

motivated only by personal interests and gain and, therefore, could be satisfied principally by monetary rewards (Fulop and Linstead, 2004). Taylor's work had been severely criticised for giving too much importance to efficiency without considering the human element, which – as he regarded workers as robots that could speed up the work at any cost – he deemed to be negligible. Moreover, Taylor made false assumptions by hypothesising that workers are motivated solely by financial gains, without recognising that social needs and personal egos are equally important (Shafritz et al., 2010). Although the application of the principles of "Taylorism" made workers less costly and easier to replace, these considerably reduced the value of labour by deskilling many jobs, making them boring, repetitive and rigidly structured, thereby producing inhumane working conditions in which workers suffered extensive psychological trauma and a poor quality of work life (Fulop and Linstead, 2004).

1.5.2. Human relations theory

The human relations theory emerged after scientists and managers recognised the powerful effects informal group dynamics had on performance in organisations (Steers et al., 2004). A well-known proponent of this theory is Elton Mayo (1933). Mayo did not see workers as mere parts in the organisational machine, but as complex beings with multiple motivational influences, and he thus emphasised that the management of an organisation needed to establish good human relations with the workers as well as between workers in order to motivate employees to work together productively (Fulop and Linstead, 2004). Collaboration was thus given a much greater emphasis than individualism and self-interest in earlier research by at the same time stressing that social needs and interests of employees must become the primary focus of managers. In order to increase motivation and productivity, managers were advised to gain control over employees by paying attention to their social needs and facilitating group cohesion. Although the human relations school is acknowledged for having recognised the importance of the social element in motivation management, for which it still has enormous impact on organisation theory and management practice, it was also attacked as being just a more indirect and covert attempt of manipulation and exploitation for the sake of productivity (Overvold, 1987, Crowther and Green, 2004, Fulop and Linstead, 2004).

1.5.3. Need hierarchy theory

In later works the focus of work motivation theories shifted to the psychological dimension of human relations. Several models emerged, which were collectively termed "content theories". Proponents of this school of thought argued that workers did not only require good working conditions but also a meaningful job over which they had control, and, because of this, the principal aim was to identify factors that contributed to the psychological well-being of the workers leading to an increased motivation at the workplace (Steers et al., 2004, Fulop and Linstead, 2004). One of the most influential researchers within the content theory school is Abraham Maslow (1954), who is well known for his need hierarchy theory. He developed a classification of human needs he assumed to be universal to all individuals, including physiological needs (e.g. food, warmth, shelter, clothing), safety and security (need to feel safe, and free of fear), belongingness (need to be able to form satisfactory affective and support relations), esteem (need to recognition and a belief in one's self), and self-actualisation (need to reach one's full potential). Maslow considered these needs to be a more or less sequential development from "lower order" to "higher order" needs, with the first two on the list represented lower order needs and the remaining higher order needs. According to Maslow's model, people are motivated by unsatisfied needs, whereas people would be never completely satisfied on any need level, but a reasonable amount of gratification with basic needs must be felt before proceeding up the hierarchy (Fulop and Linstead, 2004).

Transferring his theories to the working environment, Maslow advised managers and other organisation leaders to find ways of motivating employees by devising programs or practices aimed at satisfying emerging or unmet needs thus creating a proper climate in which employees could develop to their fullest potential. Failing to do so would increase employee frustration and could result in poorer performance, lower job satisfaction, and increased turnover (Ramlall, 2004). However, in research based on Maslow's theory, little evidence has been found for the ranking of needs that he described, or even for the existence of a definite hierarchy at all (Deci and Ryan, 2014). It was also argued that even if a hierarchy exists among needs, it cannot be definite, as it is affected by the culture in which the individual lives, and, therefore, the extent to which social needs are met in the workplace varies across different cultural environments. In addition, the theory has limited practical use in a work environment, because managers normally do not have the time to determine where every employee in the organisation stands on Maslow's hierarchy, and may also not be free to supply tailor-made rewards to each of them (Aswathappa, 2007). Notwithstanding these

shortcomings, the theory remains a standard approach used to explain work motivation even today (see, for instance, Gaki et al., 2013).

1.5.4. Motivation-hygiene theory

Frederick Herzberg (1966) developed Maslow's ideas further by identifying the job or work itself as the substantive source of motivation. In contrast to Maslow, who focussed on the role of individual differences in motivation, Herzberg sought to understand how work activities and the nature of the job influence motivation and performance. He attempted to explain the factors that motivate workers through identifying and satisfying their needs, and the aims pursued to satisfy these needs (Steers et al., 2004, Loiseau, 2011). In his motivation-hygiene theory, he proposed that job satisfaction and dissatisfaction move on two distinct and independent continuums. One class of factors, which he termed "hygiene factors", operates on a scale ranging from job dissatisfaction to no job dissatisfaction. These factors refer to environmental or organisational factors that are outside of the individual's perception of the job. Examples are remuneration, working conditions, supervision, job security, and organisation policies. The second class of factors, "motivation factors", operates on a different and distinct scale ranging from no job satisfaction to a high degree of job satisfaction. These factors, Herzberg argued, are the real source of job satisfaction and are intrinsic to the content of the job itself. Such motivators include recognition, the work itself, job advancement, responsibilities, and achievement. While hygiene factors decrease job dissatisfaction, and, if satisfied, result in neutral feelings towards the job, organisations could only achieve increased job satisfaction of their workforce by improving the motivation factors, meaning that the job itself must be a source of motivation, if workers are to be truly motivated (Fulop and Linstead, 2004, Ramlall, 2004, Smith and Shields, 2013). However, both classes of factors were considered of equal importance, as they are related to different areas of motivation, i.e. motivation to be in a job, and motivation to perform. Organisations having problems with poor attraction and retention of their staff needed to improve the conditions regarding the hygiene factors. In order to improve performance, staff needed to be motivated by influencing the motivation factors (Dieleman et al., 2003).

Herzberg's motivation-hygiene theory was and is still highly appealing for managers and researchers alike (Huang and Van de Vliert, 2003, Velickovic et al., 2014), because its core elements are simple to present and understand, and due to its clear-cut advocacy of job enrichment as a way to motivate workers (Dolea and Adams, 2005). However, its validity has

also been attacked on grounds that it has received little empirical support, because several studies produced contradictory results to its main assumptions (Gagné and Panaccio, 2014). While Herzberg claimed that all what hygiene factors can do is eliminating job dissatisfaction, but not increasing job satisfaction, other researchers have found that factors such as pay, supervision, and job security are in fact strongly associated with job satisfaction (Huang and Van de Vliert, 2003, Stringer et al., 2011, Artz and Kaya, 2014). On the contrary, studies have shown that the absence of motivation factors such as job advancement, recognition and responsibility could also lead to job dissatisfaction, and not only to reduced job satisfaction as claimed by the motivation-hygiene theory (Wong and Heng, 2009, Malik and Naeem, 2013). Such findings led to the conclusion that the two classes of factors are not actually distinct, but that both motivators and hygiene factors contribute to job satisfaction as well as job dissatisfaction (Aswathappa, 2007). Another major criticism to the theory was that it ignored individual differences such as age, sex, marital status and occupation that proved to have significant impact on motivational preferences in research studies (Dolea and Adams, 2005).

1.5.5. Process theories

A last genre of work motivation theories presented here belongs to the school of thought generally termed "process theory", which, as the term suggests, focus on delineating the processes underlying work motivation. Central to this genre is a series of cognitive theories of work motivation that collectively attempt to understand the thought processes that workers go through in determining how to behave in the workplace. Process theories contrast sharply with the relatively static content theories by viewing work motivation from a dynamic perspective and looking for causal relationships across time and events as they relate to worker behaviour in organisations (Steers et al., 2004). While content theories focus on the inner-driver of worker behaviour, process theories focus on the outcomes of certain behaviour (Dolea and Adams, 2005). Numerous theories emerged over the past 50 years of which the expectancy theory of Vroom (1964), the equity theory of Adams (1965), and the goal-setting theory of Locke and Latham (1990) received particular attention. Given the limited relevance for this thesis, it is not intended here to present these theories.

A more recent development in the process theory genre is the work motivation model of Franco et al. (2002). The authors describe work motivation as a set of psychological and transactional processes that operate at the level of an individual: psychological, because it gives behaviour purpose and direction, transactional, because it is the result of the interactions

between individuals and their work environment. While the former influences what workers are willing to do in order to adopt organisational goals ("will do" component of motivation), the latter refers to the extent to which workers affectively mobilise their personal resources to achieve these goals ("can do" component of motivation). The motivational processes are affected by determinants of motivation and mediated into the major motivational outcomes job satisfaction, performance, and intention to leave. Motivational determinants are categorised in three levels, i.e. the individual, organisational, and socio-cultural level. At the individual level, demographic characteristics, technical and intellectual capacity, as well as worker's individual goals, self-concept, and expectations are important determinants of worker motivation. Organisational factors contribute to the motivational processes occurring at individual level through a variety of channels, such as the efforts undertaken to improve worker capacities, the provision of resources and processes, which HR policies are implemented, and the way HRM is practiced by the organisation (including salary, supervision, and in-service training). These factors affect both the "will do" and the "can do" components of worker motivation. In contrast to the other work motivation theories presented above, Franco and colleagues also consider the effects of socio-cultural factors on worker motivation, and argue that especially community expectations for how services should be delivered, peer pressure and social values are important determinants of motivation. The authors stress that while the individual and organisational determinants are universal to all workers, the socio-cultural environment affects the relative importance of the different determinants and the relationship between them.

Although Franco et al.'s model is perceived as a major contribution to work motivation theory (Kyaddondo and Whyte, 2003), its validity has yet to be substantiated. The model draws its strength from providing a comprehensive approach to increasing worker motivation, job satisfaction, and performance. Moreover, in contrast to earlier works that came largely from high-income countries, Franco et al.'s model was developed specifically for the use in LMICs, where it has also been tested by the researchers (Franco et al., 2004), for which reason it might be better applicable in such contexts (Dolea and Adams, 2005). However, its complexity is likely to be a reason why – even though the article presenting the model was and is still extensively cited – it was rarely holistically applied in academic research studies to date (Kyaddondo and Whyte, 2003, Franco et al., 2004).

1.6. Conceptual framework

Because of the several limitations of earlier work motivation theories described in the previous section, it was decided to use the model of Franco et al. (2002) in this thesis for analysing the influence of management actions at district level on health worker motivation and job satisfaction, and the effects the latter two have on attrition and retention. The scientific management approach of Taylor was not suitable due to its exclusive focus on financial rewards thus failing to recognise the strong influence intrinsic factors, but also other extrinsic factors have on motivation. Although Mayo's human relations theory was a major improvement of motivation theory by recognising the importance of social dynamics and needs for motivation, it paid too little attention to extrinsic factors that have proved to be equally important. The need hierarchy theory of Maslow and the improved version of Herzberg are still highly appealing, but their core elements did not withstand scientific scrutiny. Moreover, even though both researchers had incorporated both extrinsic and intrinsic factors in their models, none of them considered demographic differences and socio-cultural factors as important for work motivation. Although all models focus on the management aspect of motivation, only Franco et al. consider their influence on motivation in their models – an aspect of central importance to this thesis. In addition, Franco et al. provide the most comprehensive approach by incorporating both extrinsic and extrinsic factors of work motivation as well as demographic differences in their model. However, this was also considered a limitation.

Given the complexity of the Franco et al. model, which goes far beyond the scope of this thesis, the simplified version of Dolea and Adams (2005) was used instead (Figure 1.2). The framework depicts schematically the motivational determinants at the individual, organisational, and socio-cultural level and their impact on motivation, with the latter playing a mediating role. Motivation in turn affects the three motivational outcomes job satisfaction, performance, and intention to leave. While the relationship between motivation, performance, and intention to leave is mediated through job satisfaction, performance in turn can also affect the level of workers' job satisfaction. Because in this thesis the main focus was on management actions and their effects on attrition and retention, particular attention was paid to the organisational determinants and their effects on motivation, job satisfaction and intention to leave. On the other hand, limited attention was given to the individual and socio-cultural aspects of motivation, and to the motivational outcome performance.

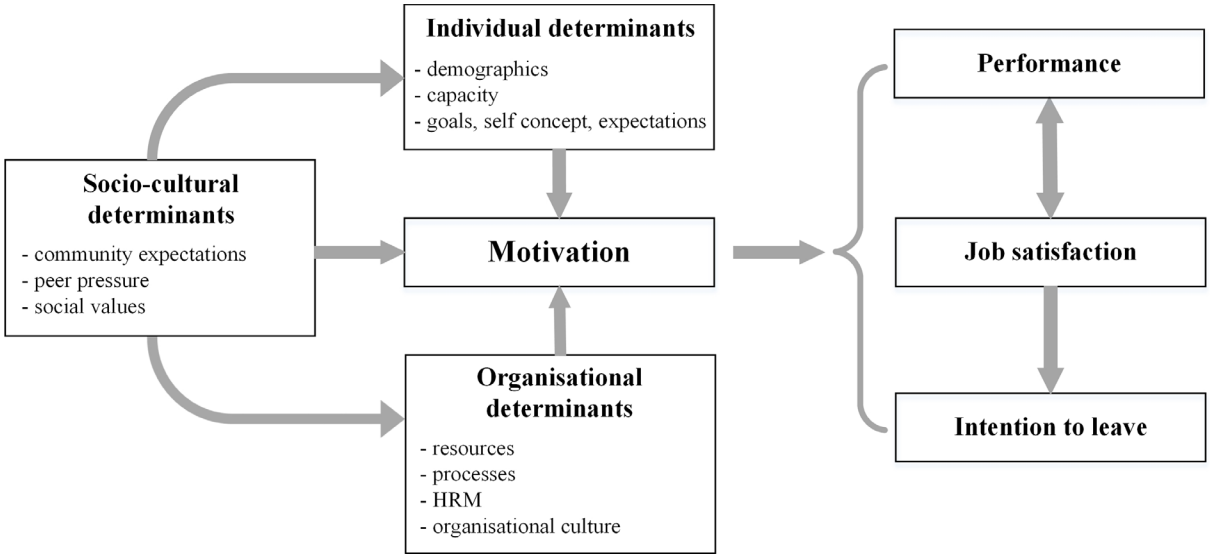

Figure 1.2. Conceptual framework of motivation. Adapted from Franco et al. (2002) and Dolea and Adams (2005).

1.7. Overview of the studies conducted for the thesis

The PhD project was carried out within the framework of the PERFORM intervention programme and in close collaboration with the School of Public Health, University of Ghana. As the school maintains a good relationship with the Government of Ghana, the Ministry of Health and the Ghana Health Service as well as essential health institutions and professionals, this collaboration was of great benefit for the project especially in its preparation and implementation phases during which access to the field and data collection was greatly facilitated.

Three studies were conducted in the frame of this thesis. The first was a qualitative study on DHMT efficiency, which aimed to identify factors resulting in inefficient district health management practices and possible ways to improve efficiency. A semi-structured interview guide was developed, which was used to interview 19 of the 21 district health managers in the three study districts. The interviews covered four thematic areas, namely usual work activities of managers, causes for inefficient district health management practices, strategies to cope with such factors, and possible ways to improve efficiency. The data analysis was guided by using the WHO leadership and management strengthening framework (World Health Organization, 2007d).

The second study was a longitudinal study on DHMT time allocation and time use practices, in which all 21 district health managers were included that were working in the study districts

during data collection. A time recording tool was developed and piloted in the three districts prior to the data collection phase. During a three-month study period, time use data was recorded retrospectively by asking all DHMT members for their professional activities of the previous day from the start of the work in the morning up to the end of the working day. Besides determining a time allocation and time use pattern of district health managers the results were also used to identify district health managing practices that may influence health worker retention and attrition as well as possible ways to improve time use.

The third study was a cross-sectional study on health worker motivation, job satisfaction, and turnover intention. A structured questionnaire was used to interview health workers in the study districts, which was adapted from Mbindyo et al. (2009) for the part on motivation and from Rouleau et al. (2012) for the part on job satisfaction. By applying a systematic sampling strategy, 256 of the 618 clinical health workers from several staff categories were selected and interviewed about their intention to leave their current health facility as well as their perceptions on various aspects of motivation and job satisfaction. In addition to an analysis of the effects of health worker motivation and job satisfaction on turnover intention, this study also looked at which of the identified statistically significant factors can be influenced by district health managers in order to improve retention of their health workforce.

2

Study area

In order to illustrate how districts in Ghana are embedded in the health system as well as the economic and political context in which district health managers operate, this section presents a general overview of Ghana, the level of decentralisation of its health system and HRM as well as the human resource situation in the country and in the study districts.

2.1. Ghana: country overview

Ghana is a West African country located on the Gulf of Guinea approximately 4° north of the equator. It covers an area of 238,533 km^2 and shares borders with Ivory Coast in the West, Togo in the East and Burkina Faso in the north (Figure 2.1). The climate is characterised as warm and comparatively dry along the southeast coast, hot and humid in the southwest, and as hot and dry in the north. Average temperatures range from 26°C to 29°C with a relative humidity between 77% and 85%. Rainfall ranges from 78 to 216 cm a year (Ministry of Food and Agriculture, 2013).

Ghana has a population of around 27 million people with an average annual growth rate of 2.5% (Ghana Statistical Service, 2015). A triangle-shaped population pyramid with a broad base of children and adolescents representing 39.9% and 20.1% of the population respectively reflects the high growth rate. In contrast, with a life expectancy at birth of 62.7 years, the age group of people older than 65 years accounts for only 4.7% of the population. Ghana has been described as a low immigration country, as only 2.5% of the population are foreigners. Akan is the largest ethnic group in the country (47.3%), followed by Mole Dagbani (16.6%) and Ewe (13.9%). The majority of the population are Christians (71.2%), 17.6% are Muslims, and

5.2% are Traditionalists (Ghana Statistical Service, 2013). Ghana is a multilingual country in which about 80 languages are spoken. Of all languages Akan, represented by its dialects Twi and Fante, is with around 44% native speakers the most widely spoken language in the country (Osam, 2003). English is the language of the state and is widely used as a *lingua franca*.

Ghana is classified as a lower middle-income country (World Bank, 2015). In 2013, Ghana's Human Development Index ranking was 138 out of 187 countries (United Nations Development Programme, 2014). According to the population and housing census of 2010 (Ghana Statistical Service, 2013), 42.0% of the working population work in the primary sector (agriculture), 15.2% in the secondary sector (industries), and 42.1% work in the tertiary sector (services). The gross domestic product (GDP) is 38.3 billion USD, with annual economic growth of 4.0%. Services (e.g. trade, information & communication, transport) are with 49.6% of the GDP the largest sector, followed by industry (e.g. mining, oil production, manufacturing) with 28.4%, and agriculture (crops, livestock, forestry, and fishing) with 22.0% of the GDP (Ghana Statistical Service, 2015).

Ghana was the first country in sub-Saharan Africa to attain formal independence from colonial rule in 1957. After a series of military coups between 1966 and 1981, Ghana underwent a transition from an autocratic military regime to liberal democracy in 1992, which entailed the lifting of the ban on political parties and the holding of presidential and parliamentary elections in the same year (Boafo-Arthur, 2008). Since then the country held general elections in four-year intervals, which were considered as free, fair and transparent by external observers (Boafo-Arthur, 2008, Pryce and Oidtmann, 2014). In 2001, Ghana was the first country in sub-Saharan Africa to achieve a peaceful transfer of power from one civilian government to another through elections, during which the ruling National Democratic Congress (NDC) was defeated by the New Patriotic Party (NPP). Democratic maturity of the state was demonstrated, when the NPP lost general elections in 2009 and the power was transferred back to the NDC who had won the elections (Fosu, 2009). Because of this democratic stability Ghana is often described as a model democracy in Africa (Boafo-Arthur, 2008).

Figure 2.1. Map of Ghana.
Available from http://www.un.org/Depts/Cartographic/map/profile/ghana.pdf

2.2. The Ghanaian health system

The health sector in Ghana is relatively decentralised under the Ghana Health Service and Teaching Hospital Act 525 of 1996, which supported delegation of authority from the Ministry of Health (MoH) to the Ghana Health Service (GHS) and deconcentration within the GHS (Saleh, 2013). The Ministry of Health is the head of the health sector and is responsible for policy formulation, resource mobilisation, monitoring and regulation of delivery of healthcare by different health agencies. The bulk of health care is delivered by agencies in the public health sector of which the GHS and the three teaching hospitals in Accra, Kumasi and Tamale are the most important. In the private sector, healthcare is delivered by the non-profit oriented, faith-based Christian Health Association of Ghana (CHAG) and various private-for-profit health facilities (Gyapong et al., 2007, Ghana Health Service, 2009). Although not integrated in the formal healthcare delivery system, traditional medicine also plays a crucial role in Ghana (Asante and Avornyo, 2013).

The health sector is organised along five levels of health care delivery, which comprises clinics at community level, health centres at sub-district level, district hospitals at district level, regional hospitals at regional level, and teaching hospitals at national level. Health facilities at the sub-district and community levels provide primary health care, district and regional hospitals secondary health care, and the teaching hospitals provide tertiary health care. Given the decentralised health system, Ghana's National Strategy for Hospitals requires having a regional hospital in every region and a district hospital in every district (Ministry of Health, 2011). While all ten regions have a regional hospital, access to secondary health care at district level is limited, as only 53% of the districts in Ghana currently have a district hospital (Ghana Health Service, 2009, Saleh, 2013). Also the sub-district level is underserved, as several sub-districts in the country do not have full-fledged health centres. Even though Ghana has scaled up its community-based health planning and services (CHPS) initiative to reach rural and remote areas, several districts lack behind the target of constructing the required number of CHPS clinics in order to reduce inequity in access to care at community level (Saleh, 2013).

Administratively, the health system is organised at three main levels, namely the national, regional, and district level. The Director General of the GHS, his deputy, and eight divisional directors head the national level. Ten regional directors of health services (RDHS) – assisted by a team of health professionals constituting a Regional Health Management Team (RHMT)

– head the Regional Health Administrations (RHA) at regional level, which provide secondary hospital care through regional hospitals and coordinate the health activities and planning of the districts. The district level is managed by the District Health Administrations (DHAs), each headed by a district director of health services (DDHS), who are assisted by a District Health Management Team (DHMT). District hospitals have their own administrations and are headed by a medical superintendent. Although the sub-district and community levels do not belong to the political-administrative units in the country, they are supposed to take over some responsibilities under Ghana's decentralisation model (Adjei, 2003, Couttolenc, 2012).

2.3. Health sector decentralisation and management

Ghana has undertaken major decentralisation programmes since the 1980s, which was strengthened and amplified by the Local Government Act 462 of 1993. As mentioned earlier, the MoH has delegated the responsibility of managing its facility network to the autonomous GHS during the country's decentralisation process, while the GHS has deconcentrated administrative decision-making down national, regional, district, and sub-district lines. This means that the sub-districts and the DHMTs report to the DDHSs, the DDHSs as well as the medical superintendents of the district hospitals report to the regional directors of health services, who in turn are directly accountable to the director general of the GHS. However, beside this vertical accountability line, horizontal accountability does also exist, as DDHSs and RDHSs do also report to district and regional governments, respectively. Beside of this, there is also a horizontal accountability line between the DDHSs and medical superintendents of the district hospitals, although this relationship is more peer-to-peer rather than a superior-subordinate relationship (Figure 2.2) (Couttolenc, 2012, Kwamie et al., 2015).

Financial management and administration was converted to a budget management centre (BMC) scheme, under which sector resources are managed through a hierarchy of BMCs. BMCs are established along administrative lines, i.e. in the GHS headquarters, the RHAs and DHAs, district hospitals, and sub-districts (Bossert et al., 2000, Couttolenc, 2012). These BMCs have their own budget allocation and are responsible for defining budget allocation and executing the budget, and are thus regarded as an important mechanism for increasing financial autonomy at the local and facility level. Based on available sector budgets and policy priorities for a budget year, the RDHSs receive budget ceilings from the MoH, which

are then allocated to the regional, district, and sub-district BMCs. Budget ceilings are used by BMCs to prepare their own budgets, which must, however, be approved at national level.

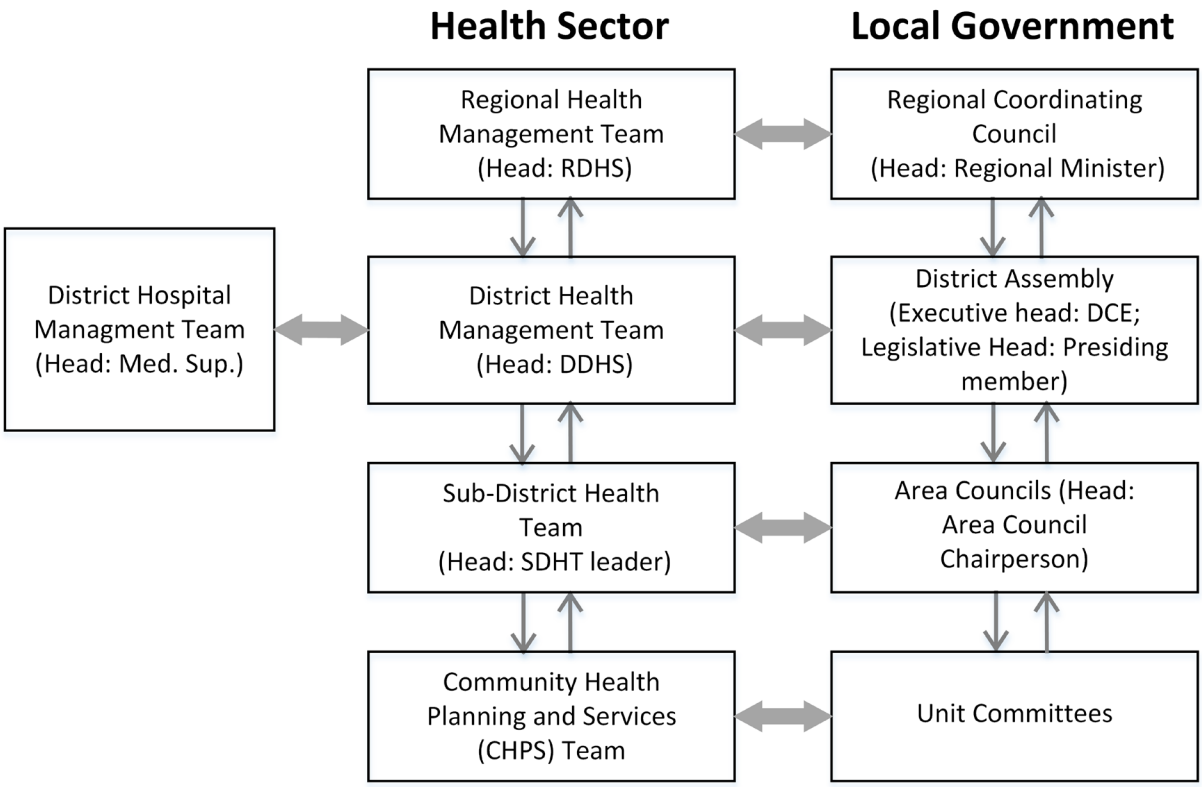

Figure 2.2. Vertical and horizontal authority and accountability in the Ghanaian health sector. RHDS, Regional Director of Health Services; DDHS, District Director of Health Services; Med. Sup., Medial Superintendent; SDHT, Sub-District Health Team; CHPS, Community-based Health Planning and Services; DCE, District Chief Executive. Adapted from Kwamie et al. (2015).

Despite this fiscal decentralisation the greatest share of health expenditure is still allocated centrally, as salaries, investment expenditure (e.g. infrastructure and capital items), and donor-funded expenditures (especially vertical programmes) are all determined and executed at national level. At lower level BMCs only administrative and health services funds are managed and allocated. RHAs and DHAs have the authority to reallocate within line items. Reallocation across items is limited to a small proportion of their budgets (Bossert and Beauvais, 2002, Abekah-Nkrumah et al., 2009, Couttolenc, 2012).

Public sector decisions about HRH are highly centralised, as the national level has the core management authority related to recruitment, regional postings, performance assessment, training schedules, promotion, disciplinary action, and termination, and has also significant oversight responsibility for a large share of pre-service training. As a result, the regional and district levels do not have the autonomy to hire and fire permanent staff, but they may hire

and fire health workers on contractual basis and also lower-level cadres, such as maintenance workers and security personnel. Decision-making authority at district level is very limited and largely relates to intra-district postings, performance assessments, in-service training, and leave and sick-days. The regional level has a somewhat higher decision-making authority with regard to HRH, as it lies also in their discretion to handle promotions and to determine, which employees are given opportunities for further training. In addition, the regional level is responsible to post employees to the districts within their regions, conducting performance assessments, and to determine who should be transferred or disciplined (Appiah-Denkyira et al., 2012b, Lemiere et al., 2012).

2.4. The human resource situation

According to an analysis of the Integrated Personnel and Payroll Database (IPPD) of the Government of Ghana conducted by Antwi et al. (2012) there are currently 46,040 clinical and non-clinical health workers employed in the Ghanaian health sector. However, this number only consists of employees on public payroll, including all public sector workers as well as 78% of health workers employed in private-non-profit CHAG facilities. As shown in Table 2.1, 27,375 employees (59.5%) in the health sector are clinical health workers. Of these clinical cadres, the largest number and proportions belong to the nursing professions (22,846 and 83.4%, respectively). Registered nurses and auxiliary nurses (or health assistants) each constitute around one quarter of the nursing workforce, followed by community health nurses (18.4%) and midwives (12.8%). Doctors (medical officers and specialists) are represented with 6.9% of the total clinical workforce, or 1,868 workers respectively. The proportions of allied health workers (such as radiographers, biomedical scientists, and dental surgeons) and pharmacists are 6.6% and 1.3% of the total clinical workforce, respectively.

Although Ghana has with 1.04 health workers per 1,000 population higher densities of key health workers (doctors, nurses, midwives) as compared to other sub-Saharan African countries with similar GDPs (such as Cameroon, Côte d'Ivoire, and Kenya) (Antwi et al., 2012), these densities fall far below the minimum ratio of 2.28 health workers per 1,000 population as recommended by the WHO (2006). This threshold is based on the estimation that, on average, 2.28 health professionals per 1,000 population are needed to achieve an 80% coverage rate for important health interventions. For instance, countries with a doctor, nurse and midwife density lower than 2.28 generally fail to achieve a targeted 80% coverage rate

Table 2.1. Number and densities of clinical health cadres in Ghana

Cadres	*Number*	*All clinical cadres (%)*	*Density (per 1,000 people)*
Doctors	1,868	6.9	0.08
Medical assistants	489	1.8	0.001
Nursing professions	22,846	83.4	0.96
Registered nurses	*7,338*	*26.8*	*0.31*
Midwives	*3,491*	*12.8*	*0.15*
Community health nurses	*5,022*	*18.4*	*0.21*
Auxiliary nurses/health assistants	*6,995*	*25.4*	*0.29*
Allied health workers	1798	6.6	0.1
Pharmacists	374	1.3	0.02
Total	**27,375**	**100**	**1.16**

Source: Antwi et al. (2012)

for skilled birth attendance, which is one of the interventions considered by the MDGs (Figure 2.3). A similar threshold was estimated for measles immunisation (World Health Organization, 2006). As Ghana falls below this threshold and also fails to attain the 80% coverage level according to an analysis conducted by the WHO (2006), the country is regarded as having a critical health workforce shortage. However, although it is generally agreed that there is a strong correlation between health worker densities and positive health status and outcomes (Anand and Barnighausen, 2004, Castillo-Laborde, 2011), using density thresholds as a determining factor for health outcomes has also been criticised, as a general formula for the number of health workers that must be present to ensure an effective health system does not exist. There is rather a complex set of factors that is relevant for determining the optimal health workforce composition for a particular country such as the productivity of the existent health workforce, their geographical distribution according to population needs, the appropriate skill-mix, and the quality of services delivered by health workers (Castillo-Laborde, 2011, O'Brien and Gostin, 2011). Nonetheless, in the absence of reliable data with regard to such factors for Ghana at national level, the WHO threshold is used in this section.

The distribution pattern of health workers is highly skewed in favour of the more affluent regions, as 68% of the highly skilled professionals are concentrated in the urban centres (especially Accra and Kumasi), although 65% of the population lives in rural areas (Ghana Health Workforce Observatory, 2011). For instance, the Greater Accra Region, one of the richest regions in Ghana, employs 55 times more doctors and 10 times more registered nurses than the Upper West Region, which is one of the poorest regions. The picture changes

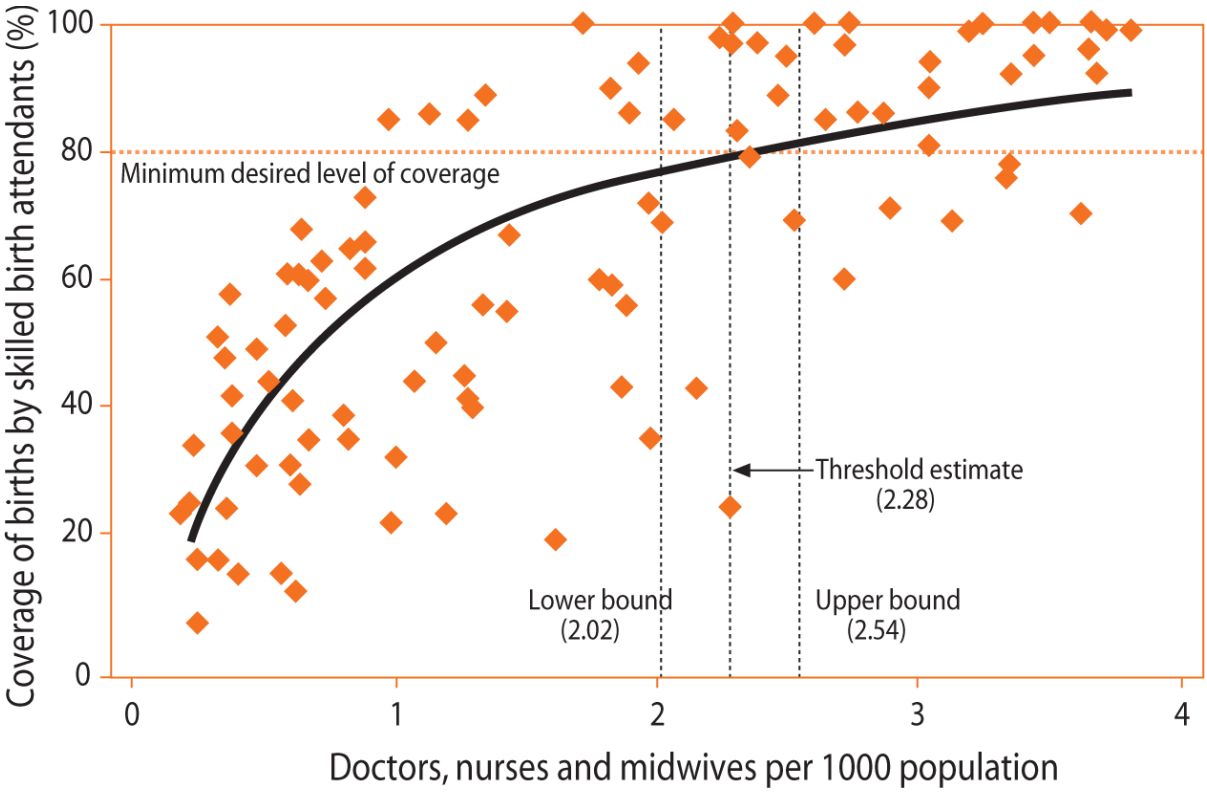

Figure 2.3. Population densities of health care professionals required to ensure skilled attendance at birth. Source: WHO (2006)

somewhat, when health worker densities per 1,000 population are taken into account, which, for instance, result in 10 times higher densities for *both* the doctor and registered nurse populations in the Greater Accra Region as compared to the Upper West Region. However, densities of doctors, nurses, and midwives in all ten regions of Ghana are far below the threshold of 2.5 health professionals per 1,000 population for achieving 80% coverage for important health interventions (Snow et al., 2012).

Studies in Ghana have shown that a low prospect of career development, higher workloads, lack of monetary incentives for rural work, poor infrastructure, rather weak management capacity, fear of prolonged rural appointments, social isolation, and lower opportunities for locum work are among the main factors why many health professionals in the country avoid rural areas (Snow et al., 2011, Kwansah et al., 2012, Jack et al., 2013). In addition, the low exposure of health workers to rural practice during preservice education, the location of the majority of training schools in metropolitan areas and regional capitals, and the underrepresentation of medical and nursing students from rural areas may also contribute to the current maldistribution of health professionals in Ghana (Snow et al., 2012).

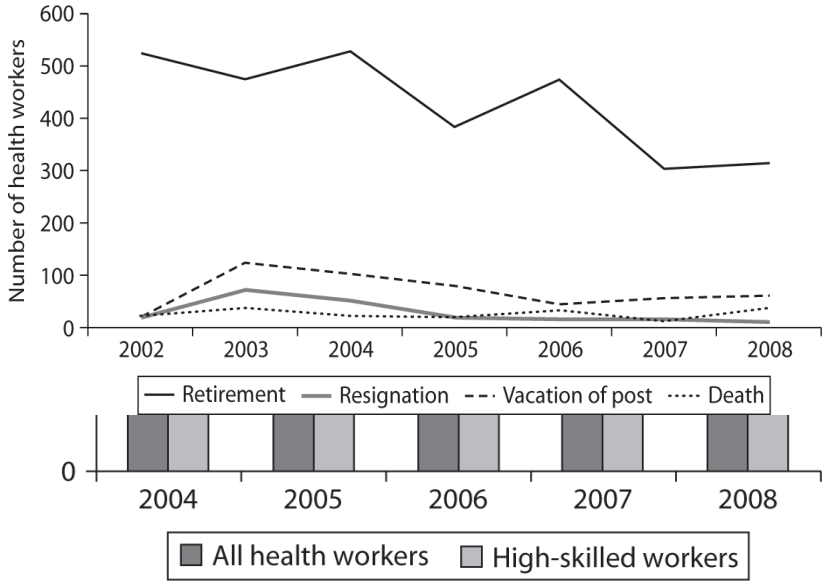

Figure 2.4. Attrition rates among health workers between 2004 and 2008 in Ghana. Source: Antwi et al. (2012)

Antwi et al. (2012) determined the attrition rates among health workers in the Ghanaian health sector by analysing IPPD data between 2004 and 2008. Attrition was determined by matching records from one year to the next with attrition being counted for records that disappeared from the data. The researchers found a significant decline of health worker attrition from 2004 to 2006, as overall attrition rates in this period dropped from around 9% to 4% and these for highly skilled health workers from around 17% to 6%, which has been associated with considerably lower levels of outmigration of health workers from the mid-2000s onwards (Lievens et al., 2011). Although attrition increased again in the following year, attrition rates for 2008 were found at a similar level as for 2006, i.e. around 5% for overall attrition and around 8% for attrition of highly skilled health workers (Figure 2.4). In the absence of current national attrition data it cannot be determined whether attrition rates in Ghana increased or decreased in recent years. However, human resource data and anecdotal data unsystematically collected in the three study districts for the present thesis suggests that overall health worker attrition for these districts resembles the country level rates from 2008 (i.e. around 5%).

Figure 2.5 shows the trend and reasons for attrition in the public health sector during the period between 2002 and 2008 as established from IPPD data (Antwi et al., 2012). The greatest proportion of all attrition cases was due to retirement, followed by vacation of post, resignation, and deaths, which had all, however, much lower proportions. Given that movements from the public health sector to the private health sector or also outside the health

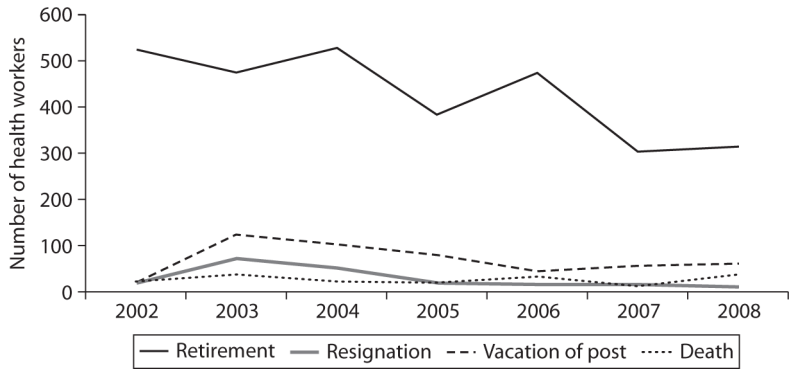

Figure 2.5. Trend and reasons for attrition in Ghana's public health sector between 2002 and 2008. Source: Antwi et al. (2012)

sector is only a minor issue in Ghana (Dovlo, 2005, Antwi et al., 2012), a likely explanation for most of the resignation and vacation of post cases is outmigration. The trends of both are declining from 2003 onwards thus indicating lower migration of health workers to countries abroad. This decline has been associated with the implementation of the MoH's human resource strategic plans in 2002 and 2007 (Ministry of Health, 2007), which introduced improved retention measures such as salary increases, improvement of higher education opportunities, and a prolonged bonding scheme for nurses (Darko et al., 2006, Lievens et al., 2011, Antwi et al., 2012). According to Lievens et al. (2011), international measures on migration that restrict active recruitment of workers from low-income countries as well as changes in the perception of outmigration might have also played a role. However, a recent study on the migration of physicians from sub-Saharan African countries to the United States – a country which has adopted the WHO Global Code of Practice on the international recruitment of health personnel in 2010 and which is one of the main destinations of Ghanaian health workers (Nullis-Kapp, 2005) – found that the annual admission rate of these cadres has in fact increased and not decreased (Tankwanchi et al., 2015).

2.5. Study districts

The studies for the present thesis were conducted in the Eastern Region. The region borders on the Greater Accra Region and the Central Region in the south, the Volta Region in the east, the Ashanti Region in the west, and the Brong-Ahafo Region in the North. Three districts were selected in this region, namely Akwapim North, Upper Manya Krobo, and Kwahu West (Figure 2.6). These districts were selected by PERFORM on the basis of their location (rural, urban, mixed), performance (good, moderately, poor), and a strong interest of the regional and district authorities to participate in the program.

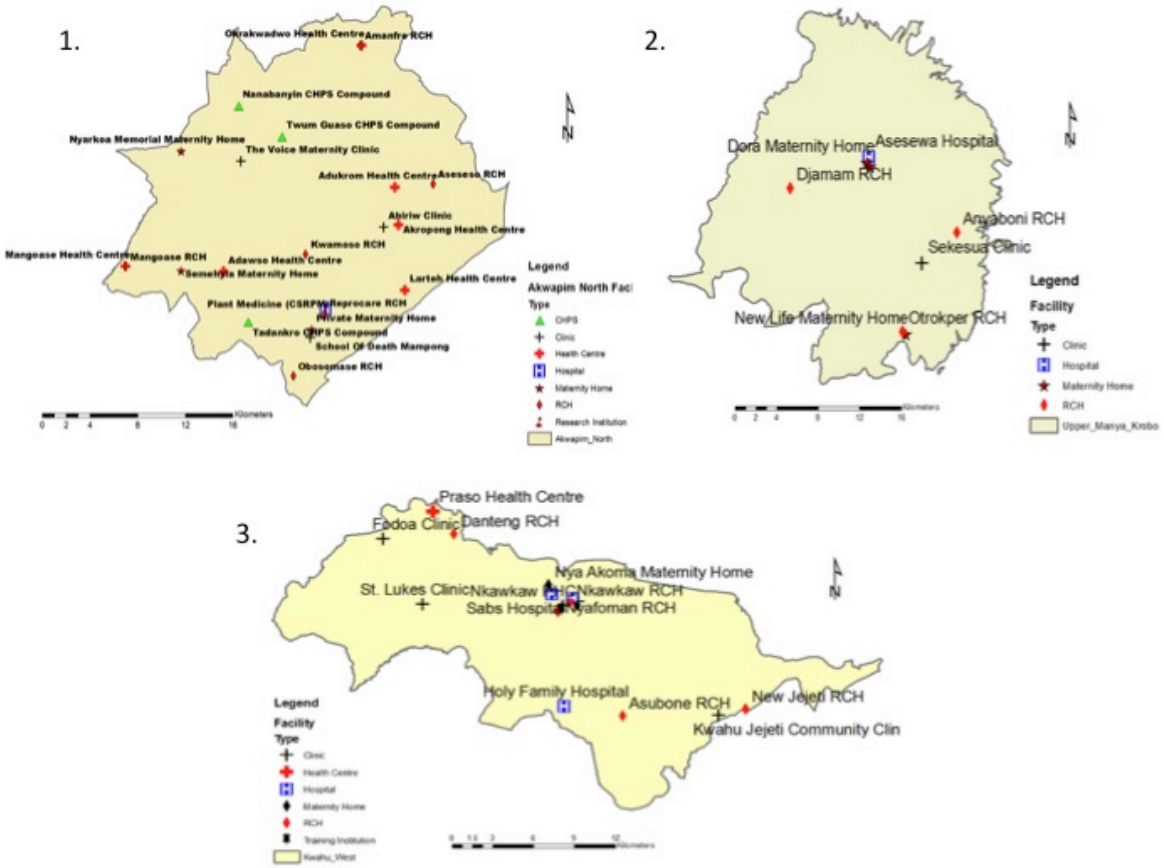

Figure 2.6. Maps of the study districts with health facilities (incomplete).
1. Akwapim North, 2. Upper Manya Krobo, 3. Kwahu West. Source: Eastern Regional Health Administration, unpublished

Akwapim North is located in the south-eastern part of the Eastern Region about 58 kilometre away from Accra. It lies on the Akwapim-Togo range, a narrow belt of ridges averaging 460 metres in height. The district covers a land area of about 450 square kilometre, representing 2.3% of the total area of the region. It has nine sub-districts with an estimated population of 142,275 people. Akwapim North comprises 19 urban towns up the ridge and about 150 rural communities down the ridge, with Akropong as the district capital. Akan and Guan are the main ethnic groups in the district. Subsistence and commercial farming is the occupation of the majority of the people, although manufacturing, extractive industries, and small-scale industries do also exist. Major towns are connected by an excellent road network linking the district to the national capital Accra as well as the regional capital Koforidua, while the smaller towns and communities have feeder roads of which some become impassable during the rainy season. Being connected to the national electricity grid, a greater number of communities have access to electricity supply (Akwapim North District Assembly, 2012, Akwapim North District Health Directorate, 2012). According to the initial situation analysis conducted by PERFORM (2013) in 2012, the most common diseases among both adults and

children under five years of age are malaria and upper respiratory tract infections. Hypertension ranks third among adults, and diarrhoea among children. The DHMT in Akwapim North is composed of eight members with vacant positions being a nutrition officer and a human resource officer. The key management challenges as reported by the DHMT are inconsistent flows of funds, lack of accommodation for health staff, transportation shortages, lack of social amenities for staff, clashing health programmes, irregular water supplies, and a fluctuating power supply.

Upper Manya Krobo is located in the north-eastern part of the region and is directly situated at Lake Volta, the world's largest reservoir by surface area. The district, which was carved out from the former Manya Krobo District in 2008, covers a land area of about 650 square kilometres. It has six sub-districts with an estimated population of 78,158 people. There are 198 communities of which eight lie outside the district's boundaries. The only town is the district capital Asesewa. The Krobo are the major ethnic group, which belong to the Ga-Adangme ethnolinguistic group. Upper Manya Krobo is predominantly rural and is considered as one of the highly deprived districts of the Eastern Region. Subsistence farming and fishing accounts for 80% of the working population, the rest mainly engage in commerce and small-scale industries. The road network in Upper Manya Krobo is very poor and mainly consists of unpaved roads and paths of which most become impassable during the rainy season thus isolating many communities. Although the district is connected to the national electricity grid, many communities do not have access to electricity. Access to health care is also limited, as most of the communities lie outside a range of five kilometres from a health facility (Upper Manya Krobo District Assembly, 2012, Upper Manya Krobo District Health Directorate, 2013). The most common disease in Upper Manya Krobo among both adults and children under five years of age is malaria, followed by rheumatism and anaemia among adults, and diarrhoea and anaemia among children. The DHMT consists of seven members. During the study period the positions of the health services administrator, the health promotion officer, and the human resource officer were vacant. The key management challenges in the district as reported by DHMTs were socio-cultural factors, low literacy level and poverty in the population, poor infrastructure such as bad roads and poor drinking water sources, poor health seeking behaviour of the population influenced by their belief system, and frequent work disturbances, especially through ad-hoc meetings (PERFORM, 2013).

Kwahu West was carved out from the Kwahu South District in 2004, is located in the north-western part of the Eastern Region, and covers a land area of 414 square kilometres. It has eight sub-districts with an estimated population of 97,556 people. Around 50% of the population is concentrated in the district capital Nkawkaw, a well-known commercial town. The rest lives in 214 small communities located mainly along the Accra-Kumasi highway that crosses the district. The majority of the population belongs to the Akan ethnic group, but Asante, Ewe, and other groups are also living in the district. Although about 50% of the population are subsistence farmers, trade and commerce are also important occupations. Except for the highway, most of the roads in the district are rugged, rocky, and unpaved making it difficult to traverse in the rainy season. While Nkawkaw is connected to the national grid, several of the communities do not have access to electricity (Kwahu West Municipal Assembly, 2012, Kwahu West Municipal Health Directorate, 2012). The top three diseases among adults are hypertension, malaria, and skin diseases, and these among children under five years of age are malaria, diarrhoea, and upper respiratory tract infections. The DHMT in Kwahu West is composed of six members with vacant positions being a health services administrator, a health promotion officer, a supply officer, and a human resource officer. This high level of vacancies makes the DHMT in Kwahu West the most understaffed DHMT of all the study districts. The reported key management challenges are lack of accommodation for health staff, transportation shortages as well as a poor road network, lack of social amenities for staff, clashing health programmes, irregular water supplies, fluctuating power supply, and high poverty and illiteracy rates among the population (PERFORM, 2013).

The study districts comprise 62 health facilities of which the majority being public facilities of the GHS, with the only CHAG facility being the district hospital in Kwahu West. Of all these health facilities 4.8% are hospitals, 35.5% are health centres, and 59.7% are CHPS facilities. Kwahu West has with 43.5% the greatest proportion of health facilities and Upper Manya Krobo with 19.4% the smallest. The number of health centres in each district also represents the number of their sub-districts, as each sub-district health system is commonly administrated by a health facility. Having the smallest number of sub-districts, Upper Manya Krobo also has the smallest number of health centres. Each sub-district is further divided into several CHPS zones, in which, according to the aim of the CHPS initiative (Nyonator et al., 2005), a CHPS compound must be constructed from which community health nurses provide their services to the communities in their zones. Although CHPS compounds have the highest proportion of all health facilities in the study districts, the relatively small number of these

compounds compared to the number of health centres indicates that not all CHPS zones already have a CHPS compound (Table 2.2).

Table 2.2. Health facilities in the study districts

Type of facility	*Akwapim North (n=23, 37.1%)*	*Upper Manya Krobo (n=12, 19.4%)*	*Kwahu West (n=27, 43.5%)*	*Total (n=62, 100%)*
Hospitals	1 (4.3%)	1 (8.3%)	1 (3.7%)	3 (4.8%)
Health centres	9 (39.1%)	5 (41.7%)	8 (29.6%)	22 (35.5%)
CHPS compounds	13 (56.5%)	6 (50.0%)	18 (66.7%)	37 (59.7%)

According to the nominal roll of health workers managed by the DHAs of the study districts, a total of 618 clinical health workers are working in these districts. The proportions of the nursing professions (87.5%), allied health workers (6.1%) and pharmacists (1.1%) resemble the proportions of these professions at national level. The proportion of doctors is lower (2.9%) and this of medical assistants is higher (2.3%) than at national level. When comparing the specific professions within the nursing profession category, it can be seen that there are only slight variations in the proportions of registered nurses (25.1%), midwives (13.9%) and auxiliary nurses (22.8%), but that the proportion of community health nurses is considerably higher in the study districts (25.7%) than at national level (18.4%). As the proportions of this cadre are only slightly higher in Akwapim North (21.6%) and Kwahu West (20.9%) than at national level, this difference is attributable to the high proportion of community health nurses in Upper Manya Krobo (41.8%). Being a rural and deprived district, the much lower proportions of doctors (0.7%), registered nurses (19.4%), and midwives (9.0%) indicate that

Table 2.3. The clinical health workforce in the study districts

Cadres	*Akwapim North (n = 231, 37.4%)*	*Upper Manya Krobo (n = 134, 21.7%)*	*Kwahu West (n = 253, 40.9%)*	*Total (n=618, 100%)*
Doctors	8 (3.5%)	1 (0.7%)	9 (3.6%)	18 (2.9%)
Medical assistants	7 (3.0%)	4 (3.0%)	3 (1.2%)	14 (2.3%)
Nursing professions	197 (85.3%)	122 (91.1%)	222 (87.8%)	541 (87.5%)
Registered nurses	*58 (25.1%)*	*26 (19.4%)*	*71 (28.1%)*	*155 (25.1%)*
Midwives	*43 (18.6%)*	*12 (9.0%)*	*31 (12.3%)*	*86 (13.9%)*
Community health nurses	*50 (21.6%)*	*56 (41.8%)*	*53 (20.9%)*	*159 (25.7%)*
Auxiliary nurses/health assistants	*46 (19.9%)*	*28 (20.9%)*	*67 (26.5%)*	*141 (22.8%)*
Allied health workers	16 (6.9%)	6 (4.5%)	16 (6.3%)	38 (6.1%)
Pharmacists	3 (1.3%)	1 (0.7%)	3 (1.2%)	7 (1.1%)

Upper Manya Krobo has problems to attract highly skilled health professionals and thus compensates this lack of health workers with lower-level cadres. Although also Akwapim North and Kwahu West may have problems to attract doctors when considering their lower proportions (3.5% and 3.6%, respectively), there are only slight variations in the proportions of most of the other cadres (Table 2.3).

3

Objectives

The overall goal of this thesis was to determine factors and management actions at district level in the Eastern Region of Ghana influencing the retention and attrition of health workers. A comprehensive set of factors was considered as potential determinants of health worker retention and attrition, including remuneration, work environment, workload, work relations, professional development, organisational commitment, and management. Special consideration was given to DHMT management efficiency and time use practices related to health worker retention and attrition.

The general and specific objectives of the individual studies presented in chapters 4 to 6 were:

1. **To identify the work efficiency of district health managers in Ghana.**
   1.1. To identify key factors for inefficient district health management.
   1.2. To identify strategies that may improve managerial efficiency.
2. **To investigate time allocation and time-use practices of district health managers.**
   2.1. To determine common activities of district health managers in Ghana.
   2.2. To develop a tool for the measurement of time allocation and time use of district health managers.
   2.3. To determine DHMT time use practices and time allocation of all district health managers combined as well as across the different health managerial cadres.
   2.4. To identify problems in time allocation and time use that may affect retention and attrition of health workers.
   2.5. To identify possible improvements in DHMT time use and time-allocation.

3. To investigate the role of motivation and job satisfaction on retention of health workers in rural and remote areas in Ghana.

3.1. To determine the levels of motivation and job satisfaction of health workers in the study districts.

3.2. To analyse the statistical relationship between the determinants of motivation and job satisfaction, and turnover intention.

3.3. To identify statistically significant factors related to health worker attrition and retention that can be influenced by DHMTs.

4

Factors influencing the work efficiency of district health managers in low-resource settings: a qualitative study in Ghana*

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* Under review at *BMC Health Services Research*

Abstract

Background: There is increasing evidence that good management can improve health system performance and thus poor and inefficient district health management practices may have negative effects on health systems. Limited research has been conducted on management practices of the district health managerial workforce in low-resource settings. Therefore, this study aims to identify factors resulting in inefficient district health management practices and possible ways to improve efficiency.

Methods: We conducted 19 semi-structured interviews with district health managers in three districts of the Eastern Region in Ghana, which comprised 90% of the district health managerial workforce working in these districts during data collection in 2013. Themes were identified by thematic analysis, using the WHO's leadership and management strengthening framework to structure the results.

Results: Identified key factors for inefficient district health management practices were human resource shortages, inadequate planning and communication skills, financial constraints, and a narrow decision space that constrains the authority of district health managers and limits their ability to bring influence to bear. Identified strategies that may improve managerial efficiency were with regard to individual district health managers, such as improving their planning, communication, and time management skills, but also with respect to the entire health system, most importantly ensuring the timely release of district funds.

Conclusions: Filling vacancies of DHMT members in all districts, developing leadership and management skills of district health managers, ensuring a better flow of district funds, and delegating more authority to the districts seems to be a promising intervention package, which may result in better and more efficient management practices and thus in increased health system performance.

Key words: District health managers, Management, Efficiency, Health system, Decentralisation, Decision space, Rural and remote areas, Ghana, Sub-Saharan Africa

4.1. Background

There is increasing evidence that good management practices can improve health system performance (Lega et al., 2013). According to the World Health Organization (WHO) (2005) managers conduct good management practices when they "provide direction to and gain commitment from partners and staff, facilitate change and achieve better health services through efficient, creative and responsible deployment of people and other resources". Studies indicate that good management practices are associated with lower patient mortality, higher institutional income, greater levels of patient satisfaction, and thus higher overall performance (West et al., 2002, Dorgan et al., 2010, Lega et al., 2013).

Limited research has been conducted on management practices of district health managers in low-resource settings (Diaz-Monsalve, 2003, Kwamie et al., 2014, Ndabarora et al., 2014, Bonenberger et al., 2015). As in other district health systems in low- and middle-income countries (LMICs), district health managers in Ghana form the link between the strategic levels (national and regional levels) and the operational levels (district and sub-district levels), and are responsible for managing all areas of health service delivery at the district and sub-district levels (Kwamie et al., 2014). They are organised in District Health Management Teams (DHMTs) that are composed of administrative, technical and operational managers. The work places of DHMTs are the District Health Administrations (DHAs), which are located in every district in Ghana. DHAs report to and are supervised by the Regional Health Administration (RHA) in their region, which in turn are accountable to the central administration at national level.

In countries which have implemented health sector decentralisation policies, district health managers often have, as Bossert (Bossert and Beauvais, 2002) calls it, a broadened "decision space", which refers to effective decision-making or range of choice within the various functions of the health system such as financing, service delivery, human resources (HR), and governance. In Ghana, decentralisation was initiated following the Ghana Health Service (GHS) and Teaching Hospital Act (Act 525) in 1996, which involved de-concentration of authority to the RHAs and DHAs in the country (Bossert and Beauvais, 2002, Ayee and Dickovick, 2010). Benefits of decentralisation identified by research in various countries include higher regional and local authority accountability, better implementation of health care strategies based on need, improved efficiency, and greater responsiveness to community requirements (Bergman, 1998, Jervis and Plowden, 2003, Jommi and Fattore, 2003, Frumence

et al., 2014). However, health care decentralisation has also been associated with negative effects, such as the delayed transfer of funds from national government, lack of technical capacity of local governments, and inequity (Kolehmainen-Aitken, 2004, Asante et al., 2006, Saltman et al., 2007, Abimbola et al., 2015).

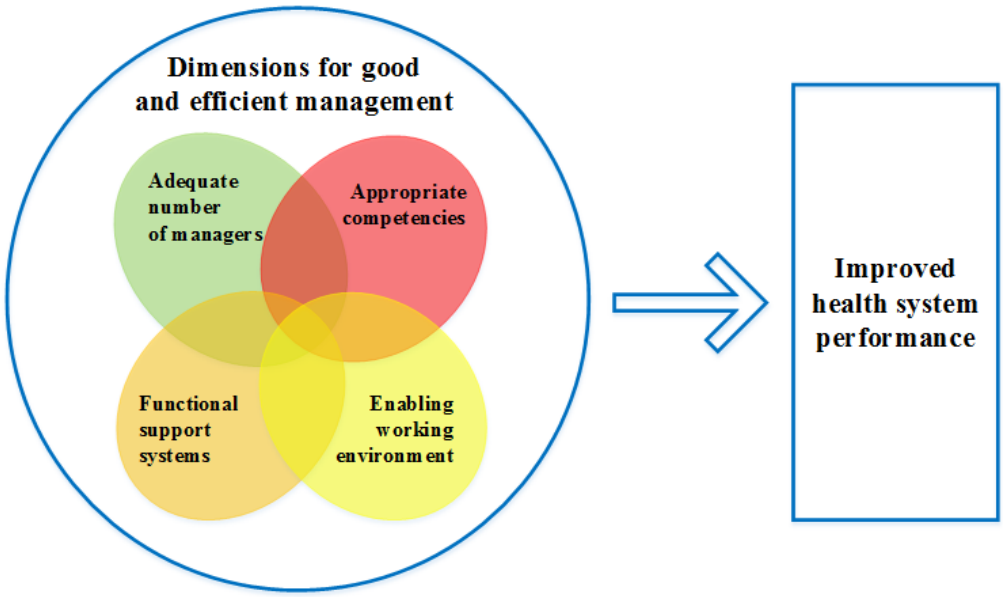

Figure 4.1. Leadership and management strengthening framework. Adapted from WHO (2007d).

The WHO's (2007d) leadership and management strengthening framework proposes that for good and efficient management at the operational level, there has to be a balance between four dimensions. First, there needs to be an adequate number of trained managers. Second, managers need to have appropriate competencies, such as knowledge, skills, attitudes and behaviours. Third, critical support systems must be functional and accessible to managers. Such support systems include planning, financial management, information system for decision-making, human resource management (HRM), and management of stocks and assets (e.g. drugs, buildings, vehicles, and equipment). Fourth, there must be an enabling work environment, which refers to both the immediate and wider work environment such as roles and responsibilities, supervision and incentives, organisational context and rules, but also to the broad cultural, political and economic context. The framework suggests that strengthening these dimensions can result in more effective health systems and services through an improved and more efficient management (Figure 4.1).

This study was carried out within the framework of PERFORM, a HRM intervention program, which aims at identifying ways of strengthening decentralized district management

in order to improve health workforce performance in sub-Saharan Africa (Mshelia et al., 2013). The aim of the present study was to identify factors contributing to inefficient management practices of district health managers, coping strategies to alleviate such factors, and ways to improve overall efficiency of the district health managerial workforce.

4.2. Methods

4.2.1. Study setting

The study was conducted in the Eastern Region of Ghana in the Akwapim North, Upper Manya Krobo and Kwahu West districts. While Akwapim North and Kwahu West can be classified as rural and semi-urban respectively, Upper Manya Krobo is predominantly rural and is also regarded as one of the highly underdeveloped districts in the region (Bonenberger et al., 2014).

At the time of the study, in 2013, there were 21 DHMT members working in the districts of which eight were working in Akwapim North, seven in Upper Manya Krobo, and six in Kwahu West. According to baseline data we collected for PERFORM they were responsible for 22 health centres and 37 Community-based Health Planning and Services (CHPS) facilities at sub-district level, with the highest number of health facilities located in Kwahu West. Although all districts have a hospital, these have their own administrations and are thus not managed by DHMTs. The total population living in the catchment areas of the health facilities in the three study districts sums up to 317,989 people. Akwapim North has with 142,275 people the greatest catchment population and Upper Manya Krobo with 78,158 people the smallest. All three DHMTs manage a total number of 291 health workers of which the DHMT in Akwapim North manages with 140 workers (48.1%) the greatest number. Community health nurses (CHN) are the type of health workers with the highest number and the administrative workforce with the lowest. Doctors in Ghana usually do not work at sub-district level and are here substituted by medical assistants (Table 4.1).

CHPS is a primary health care programme in Ghana, which was pilot-tested in the early 1990s and then rolled-out as a national policy from the late 1990s onwards in order to increase health service accessibility of people living in rural and remote areas (Nyonator et al., 2005, Binka et al., 2007). CHPS facilities are staffed by community health nurses (CHN), who provide mobile doorstep health services to community residents.

Table 4.1. Key characteristics of the three study districts in Ghana

		District		
	Total	*Akwapim North*	*Upper Manya Krobo*	*Kwahu West*
Number of district health managers	**21**	**8**	**7**	**6**
Health services	**59**	**22**	**11**	**26**
Health centres	22 (37.3%)	9 (40.9%)	5 (45.5%)	8 (30.8%)
CHPS facilities	37 (62.7%)	13 (59.1%)	6 (54.5%)	18 (69.2%)
Health workers[a]	**291**	**140**	**72**	**79**
Medical assistants	8 (2.7%)	5 (3.6%)	2 (2.8%)	1 (1.3%)
Midwives	35 (12.2%)	22 (15.7%)	4 (5.6%)	9 (11.4%)
Auxiliary nurses	21 (7.2%)	11 (7.9%)	5 (6.9%)	5 (6.3%)
CHNs	152 (52.2%)	48 (34.3%)	52 (72.2%)	52 (65.8%)
Health care assistants	9 (3.1%)	8 (5.7%)	1 (1.4%)	0 (0%)
Technical staff	23 (7.9%)	12 (8.6%)	4 (5.6%)	7 (8.9%)
Administrative staff	1 (0.3%)	1 (0.7%)	0 (0%)	0 (0%)
Orderlies	35 (12.0%)	27 (19.3%)	3 (4.2%)	5 (6.3%)
Support workers	7 (2.4%)	6 (4.3%)	1 (1.4%)	0 (0%)
Population in catchment areas	**317,989**	**142,275**	**78,158**	**97,556**

[a]Other essential professions such as medical doctors and enrolled nurses usually do not work in sub-district facilities and are thus not represented in the statistics.
CHPS: Community-based health planning and services; CHN: Community health nurse

4.2.2. Data collection

All district health managers working in the study districts were asked to take part in the study. A semi-structured interview guide was developed to guide the process of conducting the interviews. The guide was divided into the following thematic areas: usual work activities, causes of inefficient district health management practices, strategies to cope with such factors, and possible ways to improve efficiency (see Appendix 9.1.). Efficiency was thereby defined as the ability to produce management outputs by making an optimal use of resources, including time (Hurley et al., 1995). The interviews were carried out between August and September 2013. Respondents were contacted by phone and the study explained. If the respondents were willing to take part an appointment was scheduled. The interviews were carried out in the offices of the respective managers. All interviews were conducted in English and taped with a digital audio recorder. In total, we conducted 19 interviews with district health managers comprising 90% of the district health managerial workforce of the study districts during the data collection period.

4.2.3. Data analysis

We transcribed all interview tapes verbatim and then conducted a thematic framework method analysis (Gale et al., 2013). We used QSR NVivo version 10 for the analysis. The transcripts were repeatedly read in order to familiarise with the data. The four dimensions from the WHO leadership and management framework (World Health Organization, 2007d) were used as the main themes of the analytical framework, each being subdivided into the categories "constraints", "coping strategies", and "measures to improve efficiency". Sub-categories were identified through coding of transcripts with codes being labels or descriptions of what we interpreted in the passages as important. Interrelated or similar codes were grouped together into different sub-categories. The analytical framework was applied by indexing all transcripts using themes, categories and identified sub-categories. Contents of categories and its sub-categories were then summarised in analytical memos.

4.2.4. Ethical considerations

As PERFORM is coordinated by the Liverpool School of Tropical Medicine (LSTM), ethical clearance for the whole study was obtained from the Research Ethics Committee of LSTM (ID No.: 12.09). For the present study we obtained additional ethical clearance from the Ghana Health Service Ethical Review Committee (ID No.: GHS-ERC: 13/05/12). Before the start of the data collection we received written clearance from the Eastern Regional Health Administration, Koforidua, Ghana. Informed consent was obtained from all study participants. We anonymised all personal data prior to the analysis.

4.3. Results

4.3.1. Adequate number of managers

As shown in Table 4.2, all DHAs had vacancies of essential DHMT personnel. Nine positions were not filled at the time of the study. According to this, a health services administrator and a health promotion officer were available in only one district, and a nutrition officer and a supply officer in two districts. A HR officer was available in none of the study districts. Respondents emphasised that the DHAs had repeatedly sent letters to the RHA of the Eastern Region requesting for staff to fill their vacancies. However, until the end of the data collection period the RHA had not been in the position to transfer any of the required DHMT staff to the districts.

Table 4.2. Availability of DHMT staff in the study districts and vacancies

Profession	*Akwapim North (n=8)*	*Upper Manya Krobo (n=7)*	*Kwahu West (n=6)*	*Vacancies (n=9)*
Administrative managers	***2***	***1***	***1***	***2***
District directors of health services	1	1	1	0
Administrators	1	0	0	2
Technical managers	***4***	***4***	***4***	***3***
Public health nurses	1	1	1	0
Disease control officers	1	1	1	0
Health information officers	1	1	1	0
Nutrition officers	0	1	1	1
Health promotion officers	1	0	0	2
Operational managers	***2***	***2***	***1***	***4***
Finance officers	1	1	1	0
Supply officers	1	1	0	1
Human resource officers	0	0	0	3

Due to these HR shortages district health managers were required to take over tasks of the vacant positions in addition to their own duties, which represented a major constraint for most of the respondents, particularly because many additional duties, such as buying, managing and issuing drugs, where highly time consuming, thereby increasing the already high workload. Moreover, many respondents emphasised that the staff strength in each department was not sufficient in the DHAs, as only one person was usually available per job category. District health managers often stated, therefore, that they would need a colleague and/or assistants to complete their work tasks in time.

> *"I am the only one person around [in the department]. I am the only one doing basically everything. One person does everything is like one man thousand. I do the fieldwork and I do the administrative work. I think I need a helping hand"* **(DHM 14).**

> *"We used to be two, I used to have a boss to work with. […] But for now I'm alone, so I have to take care of the EPI, and to take care of the surveillance"* **(DHM 17).**

Because delays were often a result of staff shortages, many of the described coping strategies were with regard to HR. As usually not all DHMT members are invited to attend meetings and workshops at regional level, those who stay in the district often take over responsibilities of managers that have to attend. Task sharing was generally a coping strategy for time-bound activities so that these could be completed in time.

"At the DHA, because we are limited, the staffs are not adequate. And because we are not enough, jobs are shared among us. Like somebody can do some part of it for you so that you also do other things. So whatever schedule you are put on you make sure you do it and do it well" **(DHM #18).**

Executive managers, commonly district directors of health services and public health nurses, also reported that they delegate some of their work tasks to subordinate DHMT members when they were unable to complete them.

Those respondents that performed double-functions due to HR shortages also stated that they prioritise their core duties, thereby neglecting additional duties.

"Last week, because of the measles immunisation programme that we had, I couldn't finish with my monthly report [of routine health data]. So this week I have to finish with it. Meanwhile, we had an email that we have to update our staff list. By Monday we should submit it, but I have to forgo that one and make sure I finish with my core duty, which is the monthly report, and then tackle the other one later" **(DHM #16).**

All DHAs made use of national service personnel to fill their vacancies. These are personnel who complete a mandatory one year service to the country after graduating from accredited tertiary institutions (Frontani and Taylor, 2009). It was reported that during the time of the interviews national service personnel were carrying out work tasks in HR, supply, disease control, and were also used as assistant accountants. A similar strategy was to assign non-DHMT staffs work tasks of vacant DHMT positions, such as secretaries taking over HR functions or those of health services administrators. One district health manager also reported to have trained a community health nurse from the sub-districts, who was now able to assist in data reporting and other activities.

In order to alleviate HR constraints, the respondents frequently highlighted the need for the higher levels to ensure the availability of adequate human resources in all DHAs so that essential DHMT positions, such as HR officers, supply officers and health services administrators do not remain vacant and that also a sufficient number of assistants would be available in each department. It was argued that this would likely result in efficiency gains through a reduction of workload allowing DHMT members to focus on their core duties.

"We should have enough staff. That's what I think should be, but that's not the case. You have to double up, do this, do that, a whole lot. If you are the health information officer your focus should be on health information, if you are the HR officer your focus should be on HR. If we had fixed personnel handling those things, the work would be a bit smooth for us" **(DHM #16).**

4.3.2. Appropriate competencies

Many district health managers criticised that because they were taking over tasks of vacant professional positions, the quality of work outputs was affected, as they were carrying out tasks for which they were not trained and for which they lacked the necessary skills and experience. For instance, in one district the health information officer was also responsible for HR management, including maintaining the HR database, organising in- and out-transfers and promotions, and counselling of sub-district staff, although the person had not received training in these areas whatsoever. The concerned DHMT member stressed that this lack of training in HR management resulted in mistakes, thereby affecting efficiency.

"When we have new staff we have to send their details to Accra for input. When they are being promoted you have to send their details to Accra for it to be inputted so that they get their salary. And because it is not my core duty, I do my best, but at times there are some corrections so that I have to come back [to the office] and print and all those things […]. So I have to travel back and forth until I get it right" **(DHM #16).**

In addition, insufficient planning, communication, and time management skills were also frequently reported as being responsible for inefficient management practices. Although DHMTs develop annual action plans at the beginning of each year, district health managers reported of difficulties to work according to these and to translate plans into weekly DHMT activities. Therefore, in order to achieve workflow gains at the district level it was stressed that DHMTs should improve their planning skills, put a stronger emphasis on weekly planning, and develop individual work plans that are consistent with those of the DHA.

"If we are able to work according to action plans it will help improve efficiency, because if you are able to look at action planning, you know that this is what we have for this week. Then you can also plan your own activities in line with that. It will help" **(DHM #12).**

However, the importance of sharing individual plans during weekly DHMT meetings was also emphasised so that everyone in the DHA, including non-DHMT staffs, would be aware of what colleagues had planned for the week. Respondents argued that this would likely lead to improved collaboration and to a reduction of duplicated activities resulting from poor communication.

Respondents also stressed that efficiency gains could be made by becoming more time conscious, as this would likely result in the reduction of time spent on unproductive activities, such as having lengthy private conversations with colleagues, sitting idly in the office, having extended breaks, and engaging in private activities during duty hours.

4.3.3. Functional support systems

The efficiency of district health managers is dependent in part on how well critical support systems function. District managers in Ghana have access to a broad range of management systems, most importantly planning, finance, information, HR, and procurement and distribution systems for drugs and other commodities. Responses centred mainly on financial constraints, but problems regarding other management systems such as HR, monitoring and transport were also mentioned as consequences of these constraints. Although it can be expected that problems regarding other management support systems do also exist (World Health Organization, 2007d), these were not mentioned by any of the respondents and thus might not be regarded as major constraints.

Financial problems of the district and sub-district levels mainly result from the government not releasing funds in time. These "cash flow" problems led to the inability to do regular maintenance of vehicles and technical equipment, buy fuel, and ensure the supply of essential office materials. Such problems, in turn, were main barriers preventing district health managers to implement planned activities in time and thus contributed substantially to inefficiencies. It was emphasised that regularly the only funds available were those made available for vertical programme funds – such as for the Expanded Programme on Immunisation (EPI) – or other donors. There is however no flexibility in using these resources and they are earmarked to specific activities relating to the respective programmes.

> *"There are financial constraints here, because the government is not releasing funds to the DHAs. Formerly we were being given the SBS (Sector Budget Support) and GoG*

(Government of Ghana) funds. But for some time now we have not been receiving them. Only programme funds, but you cannot use them for other things. So there are financial constraints, very serious ones. Now it is not only here. The problem is all over" **(DHM #19)**.

As funds were generally limited in the DHAs, district health managers stated to make use of alternative funding sources in order to carry out planned activities. For instance, in contrast to governmental health funds, respondents stressed that funds for vertical programmes and from donors were usually released in time. As the frequent inability to buy fuel prevented regular sub-district visits for monitoring and supervision purposes, district managers reported to use the opportunity to conduct such activities when facilities were visited in the frame of vertical programme or donor activities. Under rare circumstances, such as when money was urgently needed to attend important national meetings or conferences, internally generated funds (IGFs) – revenues generated through the activities of sub-district health facilities – were also used. In addition, district health managers reported that they sometimes used their private money to fund urgent activities, which was paid back by the DHAs at a later stage once money was available.

"What we have been doing here is that at times we pre-finance some programmes. Like if you want to do supportive supervision and we see that it is very important for us to do that to correct some things immediately, if there is no fuel in the vehicle we normally buy by ourselves and then bring the receipt so that when there is money then they refund it" **(DHM #2).**

When funds become available, it was reported that these are often not sufficient to conduct all activities as planned, such as visiting all sub-district facilities for monitoring and supervision. In such instances, a certain number of health facilities are selected strategically and the remaining facilities visited at a later stage.

Most district health managers stressed that the national level must ensure an adequate flow of public health funds so that health activities could be carried out in time, thereby improving DHMT efficiency.

"I think that basically it is funds. I think if we had the funds we could do things at the right time, but because we don't have funds some of the things are just there. We cannot do anything" **(DHM #9).**

"If the [financial] resources would come on time for you to work with, it would help us. But the funds are not coming on time and then when it comes we have limited time to finish with it" **(DHM #18).**

4.3.4. Enabling environment

Factors critical for good and efficient management include policies, legislation, norms and standards, which support the appropriate delegation of authority; adequate support for managers, especially regarding access to information, communication, and supervision; financial and non-financial incentives for good management; and accountability (World Health Organization, 2007b). Despite this broad range of possible topics concerning the work environment, district health managers primarily regarded inadequate planning and communication of the higher health system levels as a constraint for efficient district management.

Because decisions of the higher levels generally supersede those of the district level, demands from these levels have higher priorities than all activities routinely conducted by district health managers. A high share of the activities conducted by district health managers is usually required by the national and regional administrations leaving little room for implementing own district specific activities.

Most respondents complained that the higher levels regularly informed them about upcoming activities at very short notice so that they are difficult to incorporate in their work schedules. As such, they interrupt their plans and result in implementation delays.

"What happens is that, if nothing comes from the region, if no programmes come from the regional level, whatever I have planned I will do it within the week. I'm able to do it" **(DHM #17).**

It was emphasised that particularly the RHA often sent invitations for meetings and workshops on very short notice, although respondents admitted that information practices of

the RHA had recently improved. In addition, district health managers complained that workshops were often held over several days with participation being mandatory. Such workshops frequently interfered with time-bound activities at district level.

> *"You know, you plan your week. You know this week you are going to do ABCD. And then a letter will come from the region, you have one week workshop, you have to stop whatever you are doing and then go"* **(DHM #11).**

Due to the frequent interruptions through unplanned activities time-bound activities were regularly at risk of not being completed in time. As a result almost all district health managers stated that they were usually working overtime, and sometimes also on weekends in order to meet their deadlines. Some respondents also reported that they were regularly working in the evening hours after workshops so to complete activities in time.

Many district health managers stressed that the higher levels should improve their planning and communication concerning the district level, which particularly referred to meetings and workshops, but generally to all activities that directly affected the districts. Although national annual plans exist and are widely distributed within the GHS, it was emphasised that these plans only include national celebrations, health weeks and some manager meetings. District health managers, therefore, frequently stressed that both the national and the regional levels should inform regularly and more timely on all upcoming activities so that DHMTs could incorporate these in their work plans.

> *"So they should give us a work plan: these are the meetings and workshops we are going to hold and this is the time we will be holding them, these are the personnel that will be involved [...]. But they let us do our plans and they also do their own and they are interfering left and right. They are our biggest problem"* **(DHM #15).**

In order to ensure that meetings and workshops do not interfere so frequently with activities at district level it was recommended that the higher levels should better coordinate such events, for instance by involving the DHAs in the planning process or at least by considering district work plans.

4.4. Discussion

Our findings indicate that there are shortfalls in all four dimensions of the WHO's leadership and management strengthening framework. All study DHAs had HR shortages, as essential DHMT positions such as HR officers and health services administrators were vacant and thus the number of district health managers was inadequate. Our findings also suggest that planning as well as communication of district managers are both inadequate and, therefore, managers lack appropriate competencies in these areas. That several of the functional support systems are inadequate was also a major finding in this study. Also the narrow decision-space of district health managers in Ghana does not seem to provide an enabling working environment to solve district specific problems.

DHMT members foremost identified difficulties in financial management processes as a determinant element. Financial constraints are indeed well-known to many health systems in LMICs (Travis et al., 2004) and were identified as main barriers to efficient district health management also in this study. Abekah-Nkrumah et al. (2009) have shown in a review of the budgetary process in the Ghanaian health sector that although channels for disbursing administrative funds are smooth, disbursements are erratic due to challenges with cash flow. In addition, cumbersome central procedures for approval of local budgets and a lack of administrative capacities at the national level regularly result in delayed approvals of district funds (Steffensen and Trollegaard, 2000, Abekah-Nkrumah et al., 2009). That this untimely release of administrative funds disrupts the implementation of DHMT activities was also a major finding in another study from Ghana (Asante et al., 2006). Besides financial constraints, HR shortages in the DHAs, inadequate planning skills of district health managers, and poor planning and communication of upcoming activities from the higher levels were also identified as key factors for inefficient district management practices. These findings are supported by quantitative data we collected in a previous study on DHMT time use practices, which showed that great shares of managers' capacities are used for only few district activities by at the same time neglecting other important activities, which we attributed mainly to HR shortages in the DHAs as well as insufficient planning and coordination by the higher health system levels (Bonenberger et al., 2015).

Several factors affecting efficiency as proposed by the WHO's leadership and management strengthening framework (World Health Organization, 2007d) were not identified by respondents. Such factors include inadequate access to supportive supervision and appraisals,

HR management systems, collaboration with other stakeholders at district level, and incentives for good performance. Although district health managers in the study districts may not perceive these factors as primarily constraining their efficiency, research conducted in other LMICs suggests that such factors may indeed affect managerial efficiency (World Health Organization, 2007b, World Health Organization, 2007c).

Common strategies of district health managers to cope with the untimely release of funds are carrying out routine activities while on duty for vertical programs or donors, borrowing IGFs from sub-district health facilities, and using own private cash to fund DHMT activities. Such strategies confirm those reported in a study conducted by Asante et al. (2006) in Ghana. Regarding the other strategies described in this study, some are themselves a source for inefficient district management. For instance, while prioritising core duties increases efficiency of such activities, additional duties are neglected at the same time, thereby affecting efficiency. Also making use of unqualified staff to carry out DHMT work tasks may improve efficiency in some work areas due to the greater number of workers, but may simultaneously decrease efficiency in other areas through mistakes resulting from a lack of appropriate training and skills. Moreover, using unqualified staff to carry out qualified work is also likely to have negative effects on the quality of work outputs.

It is generally assumed that managers are more efficient in decentralised health systems, given that they have better control over resources and activities and are in a better position to plan and prioritise as compared to managers in centrally managed health systems (Hurley et al., 1995, Conn et al., 1996). Very limited financial resources are generated at district level and these can be administered by district managers. However, the bulk of resources is made available to local managers by the national and the regional administration (Bossert and Beauvais, 2002, Bonenberger et al., 2014) and here the district managers have only little control. In addition, studies also emphasised the low decision-making authority of Ghana's district health managers (Bossert and Beauvais, 2002, Kwamie et al., 2014, Kwamie et al., 2015), which was attributed to the colonial organisation structure inherent in the modern health system encouraging a centralised hierarchical administration culture with little involvement of the district level in planning and implementation of health services (Sakyi, 2008). In our study, we identified both issues – low control over resources coupled with little authority over district activities – as major factors for inefficient district management. Our findings thus confirm the rather narrow decision space attributed to district health managers

by studies carried out in Ghana in recent years (Bossert and Beauvais, 2002, Kwamie et al., 2014).

This study had limitations. As the focus was only on district health managers in three districts, perceptions concerning these districts may not be generalizable for all areas in the country. However, given their broader administrative responsibilities, findings regarding the higher health system levels are likely to also prevail in other areas. Moreover, the issues emerging from the data reveal relationships significant for management strengthening in LMICs and are thus relevant for researchers, donors and policy makers. Although the three DHAs included in this study differ in terms of factors such as DHMT composition, distance to the regional and national administrations, and socio-economic status of the districts, we pooled all data and, by doing so, may have masked insights that could have been revealed through a stratified analysis. We also recognise the limitation of not having explored the perceptions of regional and national health managers. Such triangulation might have added different perspectives.

4.5. Conclusions

This study has shown that inefficient district health management is mainly a result of HR shortages at the DHAs, inadequate planning and communication skills of district health managers, financial constraints, and a narrow decision space giving district managers little authority over activities. The findings thus indicate that there are shortfalls in all four dimensions of the WHO's leadership and management strengthening framework. As these are closely interrelated, efforts to strengthen management at district level are unlikely to succeed when these are not tackled at the same time. It is, therefore, not sufficient to just carry out interventions at the district level by improving management skills of district health managers or increasing their number. Although developing management skills of district health managers is undoubtedly important, our findings strongly suggest that the wider health system must also be considered in order to achieve better management efficiency. Filling vacancies of DHMT members in all districts, developing leadership and management skills of district health managers, ensuring a better flow of district funds, and delegating more authority to the districts seems to be a promising intervention package, which may result in better and more efficient management practices and thus in increased health system performance.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

MB designed and implemented the study, transcribed the interviews, performed the analysis, and drafted the manuscript. MA and PA participated in the design of the study, contributed in its implementation, and commented on draft versions of the manuscript. KW participated in the design of the study and contributed to the writing and revising of the manuscript. All authors read and approved the final manuscript.

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5

What do district health managers in Ghana use their working time for? A case study of three districts*

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Abstract

Background: Ineffective district health management potentially impacts on health system performance and service delivery. However, little is known about district health managing practices and time allocation in resource-constrained health systems. Therefore, a time use study was conducted in order to understand current time use practices of district health managers in Ghana.

Methods: All 21 district health managers working in three districts of the Eastern Region were included in the study and followed for a period of three months. Daily retrospective interviews about their time use were conducted, covering 1182 person-days of observation. Total time use of the sample population was assessed as well as time use stratified by managerial position. Differences of time use over time were also evaluated.

Results: District health managers used most of their working time for data management (16.6%), attending workshops (12.3%), financial management (8.7%), training of staff (7.1%), drug and supply management (5.0%), and travelling (9.6%). The study found significant variations of time use across the managerial cadres as well as high weekly variations of time use impulsed mainly by a national vertical program.

Conclusions: District health managers in Ghana use substantial amounts of their working time in only few activities and vertical programs greatly influence their time use. Our findings suggest that efficiency gains are possible for district health managers. However, these are unlikely to be achieved without improvements within the general health system, as inefficiencies seem to be largely caused by external factors.

Key words: District health managers, District health management, Time management, Time use survey, Rural and remote areas, Ghana, Sub-Saharan Africa

5.1. Background

Ineffective health management potentially impacts on health system performance and service delivery (West et al., 2002, Dorgan et al., 2010). Activities of health managers typically comprise areas such as planning, organizing, monitoring, supervising, directing, managing human resources, coordinating, resourcing and budgeting (Buchanan et al., 2013). It is generally assumed that such managerial activities improve organizational outcomes, if managers perform them effectively (Hales, 2001). For instance, a study on human resource management (HRM) showed that good human resource (HR) practices were associated with decreased patient mortality (West et al., 2002). Another study also found that improved management practices contribute to lower mortality, higher institutional income, and better patient satisfaction (Dorgan et al., 2010).

An important factor for good management practices is effective time management. Claessens et al. (2007) define time management as "behaviours that aim at achieving an effective use of time while performing certain goal-directed activities". This definition focuses on the goal-directed activities, such as work tasks, which are carried out by making an efficient use of time. Studies have shown that improved time management practices are positively associated with job satisfaction, reduced stress, and work performance (Claessens et al., 2004, Peeters and Rutte, 2005, Chang and Nguyen, 2011).

To our knowledge this study was the first to explore time use practices of district health managers in Africa or elsewhere. District Health Management Teams (DHMTs) in Ghana are responsible for managing all areas of health service delivery at district level. They were established following the Ghana Health Service (GHS) and Teaching Hospital Act (Act 525) in 1996, which initiated decentralization of Ghana's health services with the subsequent creation of Regional Health Administrations (RHA) and District Health Administrations (DHA) (Bossert and Beauvais, 2002, Ayee and Dickovick, 2010). DHMTs are headed by District Directors of Health Services (DDHS), who are responsible for policy translation, implementation, coordination, monitoring and evaluation, and who provide direction in the management of health service delivery in their districts (Ghana Health Service, 2005b). To carry out these tasks they are assisted by administrative, technical and operational managers such as health services administrators, disease control officers, and supply officers. Although district health managers are crucial at the operational level of health systems, surprisingly little is known about how these managerial cadres structure their workdays.

Time use studies are usually conducted with health workers at facility level (Whittington and McLaughlin, 2000, Weigl et al., 2009, Shinder et al., 2012, Mallidou et al., 2013, Heslop et al., 2014). As these personnel are usually centred on their workplace and are, therefore, not very mobile at work, time and motion techniques are often used as the method of choice to measure work time. This method involves the direct observation of health workers by trained observers, who record activities at short time intervals. Although regarded as the 'gold standard' for measuring work time of individuals (Bratt et al., 1999, Zheng et al., 2011), time and motion methods are often not feasible for larger time use surveys or study groups with increased mobility, as only a limited number of individuals can be followed by each observer (Zheng et al., 2011). In such studies, self-administered timesheets or retrospective interviews are often the preferred methods to collect time use data of health workers (Braithwaite and Westbrook, 2011, Sonnenberg et al., 2012, Thylefors, 2012, Mangham-Jefferies et al., 2014, Russo et al., 2014).

This study was carried out within the framework of PERFORM, a health human resource management (HRM) intervention program, which aims at identifying ways of strengthening decentralized district management in order to improve health workforce performance in sub-Saharan Africa (Mshelia et al., 2013). Although PERFORM is carried out in three African countries, this study focused only on time use practices of DHMTs in Ghana. The aim of this study was to assess current time use practices of district health managers in the three PERFORM study districts and to identify ways to improve their time use. We, therefore, conducted an explorative three-month DHMT time use study by doing daily retrospective time use interviews with all district health managers in the study districts and by using a time diary approach.

5.2. Methods

5.2.1. Study setting

The study was carried out in the Akwapim North, Upper Manya Krobo, and Kwahu West districts, which are located in the Eastern Region in Ghana. These districts were selected by PERFORM on the basis of their performance according to a baseline analysis of indicators of the 16 functioning districts in the region, which resulted into a grading of good, moderate and poor performance. Of the 11 districts that expressed interest to participate in the study we selected a well (Kwahu West), a moderately (Akwapim North), and a poorly performing district (Upper Manya Krobo).

All three DHMTs in these districts were included in the study, in which a total of 21 district health managerial staff were working during the data collection period in 2013. As shown in Table 5.1, six, seven and eight staff were available in the respective districts. DDHSs, public health nurses, disease control officers, health information officers, and financial officers were available in all three DHMTs. The position of the health services administrator was vacant in two DHMTs and that of the nutrition officer and supply officer each in one DHMT. The position of the human resource officer was vacant in all three DHMTs during the study period.

Table 5.1. Compositions of the study DHMTs

	Akwapim North	*Upper Manya Krobo*	*Kwahu West*	*Total*
Administrative managers	**2**	**1**	**1**	**4**
District directors of health services	1	1	1	3
Health services administrators	1	0	0	1
Technical managers	**4**	**4**	**4**	**12**
Public health nurses	1	1	1	3
Disease control officers	2	1	1	4
Health information officers	1	1	1	3
Nutrition officers	0	1	1	2
Operational managers	**2**	**2**	**1**	**5**
Finance officers	1	1	1	3
Supply officers	1	1	0	2
Human resource officers	0	0	0	0
Total	***8***	***7***	***6***	***21***

Our study coincided with two nationwide immunization campaigns, which were carried out within the framework of the Expanded Program on Immunization (EPI) in order to vaccinate infants and children against polio as well as measles/rubella. In Ghana, national and sub-national immunization campaigns are regularly conducted as supplementary activities to routine immunization services to increase coverage (Ansong et al., 2014). While national polio immunization campaigns are carried out annually since 1996 (Koram et al., 2014), national measles supplementary immunization activities are implemented in four-year intervals since 2002 (Hoekstra et al., 2011), most recently in 2013. As the district level manages and coordinates the implementation of national immunization campaigns, our study provides a unique insight on how such campaigns influence time use of district health managers as compared to their routine time use.

5.2.2. Tool development

Development of the time recording tool followed two steps. First, we consulted relevant health management literature, policies and manuals in order to identify typical activities and tasks of health managers. Because the GHS currently provides job descriptions only for the DDHS, but not for other DHMT cadres, we consulted job descriptions for similar professions at hospital level, which are available for all cadres at this level. We conceived of meaningful activity categories and assigned the identified activities to these. The categories were "managing and monitoring service provision", "human resource activities", "management of material resources", "financial management", "general management activities", "clinical activities", "travelling" and "non-productive activities". Secondly, we conducted individual interviews with all 21 DHMT members of Akwapim North, Upper Manya Krobo, and Kwahu West and asked respondents about missing activities, the validity of our identified activities, and the frequency in which they conducted these activities. The tool was revised after the interviews to remove irrelevant activities and activities of low frequencies, and to add missing activities frequently conducted by district health managers.

5.2.3. Pilot

In order to further assess the validity of the activities for all studied DHMT positions and to identify the most suitable method for tool delivery, we conducted a two-week pilot in the three study DHMTs. We tested three methods: self-administration, face-to-face interviews and telephone interviews. Self-administration was not suitable for the study as the response rate of only about 50% was low and also because district health managers found it difficult to assign their activities to the correct activity in the time recording tool, which would have created harmonization issues in the analysis. We found that the best method for carrying out the study was through a combination of face-to-face interviews and telephone interviews: face-to-face interviews with all district health managers present in the DHAs early in the morning and telephone interviews with those staff who did not report at the office due to responsibilities outside the DHA on a certain day. Whereas interview-administration had the advantage that the interview took place in a familiar office environment and during a time respondents were less busy, telephone interviews were the only feasible way to reach study participants who were absent from the office on a given day. Accuracy of both methods was superior to self-administration as one trained person assigned all activities from the respondents in a district to the time recording tool. The tool was revised again after the pilot mainly to make activities more specific and to add or remove activities (see Appendix 9.2. for

the tool version used in this study). The activities measured in this study as well as their definitions are presented in Table 5.2.

5.2.4. Data collection

We posted one field assistant to each of the three DHAs. Two field assistants already had working experience in a DHA and were, therefore, familiar with common activities of DHMTs. All field assistants received formal training on interview techniques prior to the start of the data collection. In order to ensure consistency of the interviews we handed out a documentation guideline to all field assistants and study participants, which precisely described the activities listed in the time recording tool. All 21 district health managerial staff in the three DHMTs were included in the study and were followed over a period of three months between 1st August and 31st October 2013. Daily retrospective time use interviews were conducted by the three field assistants. They asked DHMTs for all their professional activities of the previous day from start of the work in the morning up to the end of the working day. Activities as well as their start and end times were recorded in time use diaries as reported. After each day, field assistants assigned the recorded activities and times to the corresponding activities in the time recording tool. Accuracy of these allocations of activities and time use was regularly checked by a field supervisor and emerging issues were discussed with field assistants, study participants, and within the core research team.

5.2.5. Statistical analysis

We entered the data using Epi Info 7 and used STATA 13 (STATA Corp., College Station, TX, USA) for the statistical analysis. The data was checked for correctness and implausible values. Due to the explorative nature of the study, we applied simple descriptive statistics to analyse the data. Total work time (without breaks) was calculated by subtracting breaks from total time on duty. Means were calculated only for days on which respondents were on duty or for which information was not missing. Confidence intervals (CIs) of 95% are reported as between-subject CIs. Percentages were calculated by dividing the activities or activity categories by total work time (excluding breaks). For the analysis of the variation of weekly time use we included only activities with a greater variation, according to visual assessment, excluding all activities, which remained relatively stable during the study period. Because of the non-parametric character of the data, we used the Kruskal-Wallis test to examine differences of numeric variables between groups (DHMT position or time).

Table 5.2. Definitions of the activities included in the study

Activity	*Definition*
Planning & organizing of health services and programs	All activities related to the development, writing, and organizing of health services and health programs.
Monitoring	All monitoring activities, including preparation and post-processing of these activities, such as monitoring staff performance, work progress, and availability of drugs and supplies in health facilities.
Data management	Activities related to routine health service data from health facilities, including obtaining, collating, entering, validating, revising and analysing of data, and subsequent reporting.
Project reports	Writing of reports not related to routine health data, such as progress reports for health projects carried out for stakeholders.
Community visits	All visits to the communities of the district, representatives of the communities or participation in community durbars.
Research	All activities related to research, including PERFORM.
HR Management	All activities related to the management of HR, such as updating of the HR database, preparation of promotions, and writing of the monthly HR report.
Supervision	Activities related to supervision of staff, including preparation and post-processing of supervisory visits.
Training	All training events carried out by DHMT staff, including preparation and post-processing of such events.
Staff durbars	Participating in or organizing of staff durbars.
Management of buildings and equipment	All activities related to the management of buildings and of medical and technical equipment, such as updating of asset registers, receiving computers or medical equipment, and activities related to maintenance, repairing and rehabilitation.
Management of drugs and supplies	All activities related to the management of drugs and supplies and their provision to health facilities. Activities include procurement, updating procurement registers, and issuing of drugs to health facilities.
Financial management	Activities related to the management of finances, such as preparing and issuing payment vouchers, budgeting, and financial reporting.
Meetings & visitors	All activities with regard to attending meetings and receiving visitors, including preparation and post-processing of such events. Activities include weekly DHMT meetings, meetings with stakeholders at all levels, unplanned emergency meetings.
Workshops	Participating in workgroups, workshops or conferences, which are organized by any agency of MoH, other sector-ministries, or third-party organizations.
Administration	All administrative activities in the office, such as phone calls, mailing, or letter writing.

Self-study	All activities intended to obtain new knowledge, but which are not related to formal training.
Clinical activities	All health promotion, prevention and curative services, such as talking on radio shows on health topics, x-ray screening, ward rounds, and attending to patients at OPD.
Travelling	All activities related to travelling, such as journeys to health facilities, villages, and venues of meetings and workshops.
Non-productive activities	All activities, which are unproductive such as waiting for an activity to start, morning devotions, and private social commitments.
Other activities	All activities, which do not belong to any of the above activities.

5.2.6. Ethics statement

This study was approved by the research commission (institutional review board) of the Swiss Tropical and Public Health Institute (#103, 25/04/12). Ethical clearance was obtained from the Ghana Health Service Ethical Review Committee (ID No.: GHS-ERC: 13/05/12). This study was an integral part of the PERFORM intervention program administered by the Liverpool School of Tropical Medicine (LSTM), and the whole intervention program thus got ethical clearance from the Research Ethics Committee of LSTM (ID No.: 12.09). Before the start of the data collection we obtained written clearance from the Eastern Regional Health Administration, Koforidua, Ghana (07/06/13). Participants gave verbal informed consent to participate in the present study, for which no particular written consent form was necessary, as they already had provided a general consent for PERFORM. Participant consent was documented in the written record by the interviewer. This consent procedure was approved by the institutional review boards mentioned above.

5.3. Results

Overall, we recorded 1182 work days of 21 district health managerial staff over a period of 3 months. The mean time on duty (including breaks) was 9.4 hours (95% CI, 9.0 to 9.8). Because district health managerial staff spent 0.7 hours (95% CI, 0.6 to 0.8) in breaks, mean work time comprised 8.7 hours (95% CI, 8.2 to 9.1). With the working time prescribed by the GHS being 8 hours without breaks, this means that the mean overtime worked by district health managers was 0.7 hours.

Figure 5.1 shows the distribution of total mean time use of district health managers in the eight major activity categories in hours. The highest mean time was used in managing and

monitoring service provision, for which managers spent 2.7 hours. General management activities were with 2.2 hours the activity group with the second highest time use, followed by human resource activities with 1.3 daily hours. In comparison, mean time use for financial management (0.7 hours) and management of material resources (0.5 hours) were considerably lower. Clinical activities were conducted only 0.1 hours in the mean. Travelling accounted for 0.8 hours and non-productive activities (excluding breaks) for 0.3 hours of the mean working time.

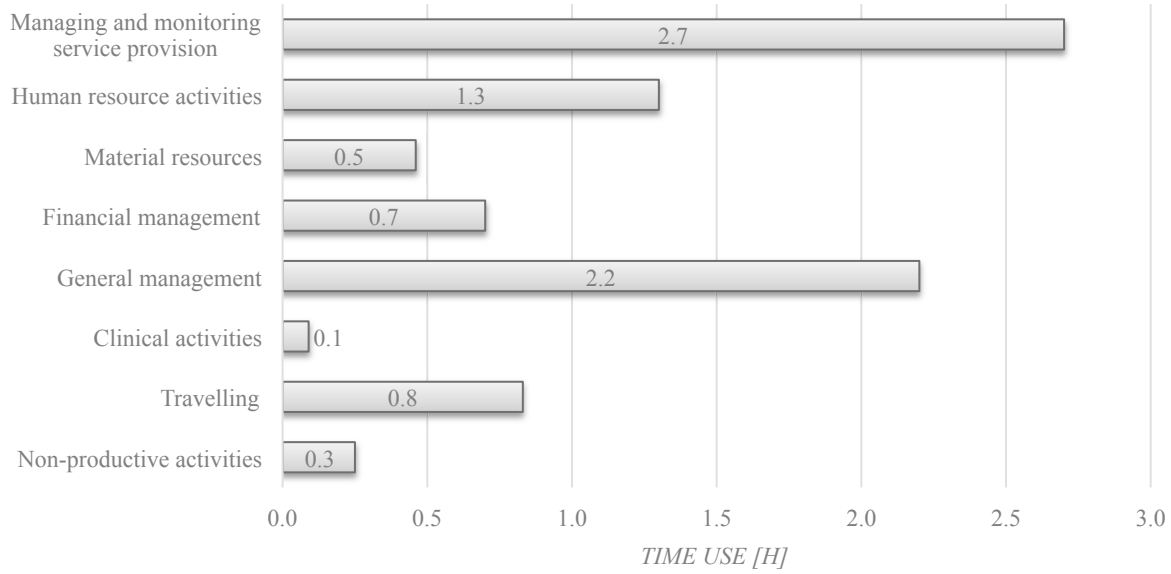

Figure 5.1. Total mean time use of district health managers, in hours. Mean working time comprised 8.7 hours. The working time prescribed by the Ghana Health Service is 8 hours.

Table 5.3 presents the time use pattern for all activities carried out by district health managers during the three months study period in minutes and in percentage of total time use. District health managers allocated with 16.6% (86 minutes) the highest proportion of their working time to data management, followed by attending workshops (12.3%, 64 minutes), monitoring (9.8%, 51 minutes), and attending meetings or receiving visitors (8.5%, 44 minutes). Although human resource activities was the activity group with the third-highest proportion of time use, activities in this group were distributed unevenly, with the highest share allocated to training (7.1%, 37 minutes) and supervision (6.6%, 34 minutes) of staff, but with a low share allocated to HRM (1.3%, 7 minutes) and staff durbars (0.6%, 3 minutes). A similar pattern was observed in the material resources activity group, as managers spent most of their mean time in managing drugs and supplies (5%, 26 minutes), but allocated only a fraction of their time to managing buildings and equipment (0.2%, 1 minute). Other activities with low

proportions of mean working time were community visits (0.2%, 1 minute), research (0.6%, 3 minutes), and clinical activities (1.0%, 5 minutes). District health managers spent 9.6% (50 minutes) of their mean working time on travelling and 2.9% (15 min) of their activities were non-productive.

Table 5.3. Activities of district health managers and mean time use, in minutes and percentage

Activity	*mean time [min] (95% CI)*[a]	*Percentage of total time use*
Managing and monitoring service provision	**162 (121−203)**	**31.2%**
Planning & organizing	19 (14−24)	3.7%
Monitoring	51 (40−61)	9.8%
Data management	86 (51−122)	16.6%
Project reports	3 (1−6)	0.6%
Community visits	1 (0−1)	0.2%
Research	3 (1−4)	0.6%
Human resource activities	**81 (54−108)**	**15.6%**
HR Management	7 (0−13)	1.3%
Supervision	34 (20−49)	6.6%
Training	37 (20−53)	7.1%
Staff durbars	3 (2−4)	0.6%
Material resources	**28 (3−52)**	**5.4%**
Buildings & equipment	1 (0−2)	0.2%
Drugs & supplies	26 (2−50)	5.0%
Financial management	**45 (3−87)**	**8.7%**
General management activities	**132 (100−165)**	**25.4%**
Meetings & visitors	44 (35−52)	8.5%
Workshops	64 (47−82)	12.3%
Administration	18 (6−30)	3.5%
Self-study	6 (1−11)	1.2%
Clinical activities	**5 (1−10)**	**1.0%**
Travelling	**50 (43−57)**	**9.6%**
Non-productive activities	**15 (10−20)**	**2.9%**
Other activities	**1 (0−1)**	**0.2%**

[a]reported as between-subject CIs

Figure 5.2 shows the variations of weekly mean time use of all study DHMTs in nine major activities of district health managers over the three months study period in percentage. Attending workshops and training of staff were dominant activities before and after the two national immunization campaigns, which were carried out during weeks 6 and 7, and week 12 of the study, but were both minor activities during these campaigns. Planning and organizing was mainly conducted shortly before and during the immunization campaigns. Also

supervision was mainly conducted during these campaigns, where the activity resembled the proportion of time use in monitoring. This was because district health managers conducted supervision and monitoring simultaneously at outreach points during the campaigns and we, therefore, allocated their time use evenly to both activities during data entry. Monitoring was also conducted outside the campaigns, but the proportion of time use was highest during the first immunization campaign. Although management of drugs and supplies was a frequent activity with a distribution of 5% of total mean time use, this proportion increased shortly before or during the immunization campaigns and reached a peak with 16.0% of mean time use in week 5 during which district health managers distributed vaccines to health facilities at sub-district level. Data management was a dominant activity most of the time, as district health managers either managed routine data of the facilities at sub-district level or vaccination data from the two immunization campaigns. The proportion of this activity thereby reached with 30.9% of mean work time a peak in week 10. Attending meetings and receiving visitors, and travelling were also regular activities of district health managers, but their proportions usually increased shortly before and during the immunization campaigns.

Table 5.4 presents the time use pattern for the different DHMT staff categories as established during the three months study period in percentage. Most of the differences in time use between the managing cadres were found to be statistically significant. The DDHSs were the cadre with the highest percentage of working time spent on meetings and visitors (15.6%), and attending workshops (23.2%). Although all DDHSs had a clinical background, clinical activities demanded only 3.5% of their time. HRM was mainly conducted by the health services administrators in this study, to which 13.1% of the working time was allocated. Public health nurses, disease control officers, health information officers, and nutrition officers allocated a high amount of their mean working time to data management, which even reached 29.1% for the public health nurses. Nutrition officers were the cadres with the highest proportion of their working time spent in training of staff (22.8%), as they were not only engaged in training events for the two national immunization campaigns, but they also conducted training for a program on community-based management of acute childhood malnutrition (CMAM), which was initiated during the study period. Travelling was an activity conducted by all district health managers in which they spent a considerable amount of their working time with a range between 5.9% (nutrition officers) and 13.1% (supply officers). Although differences in time use were not significant for non-productive activities, these were lower than 5% of their working time for most cadres.

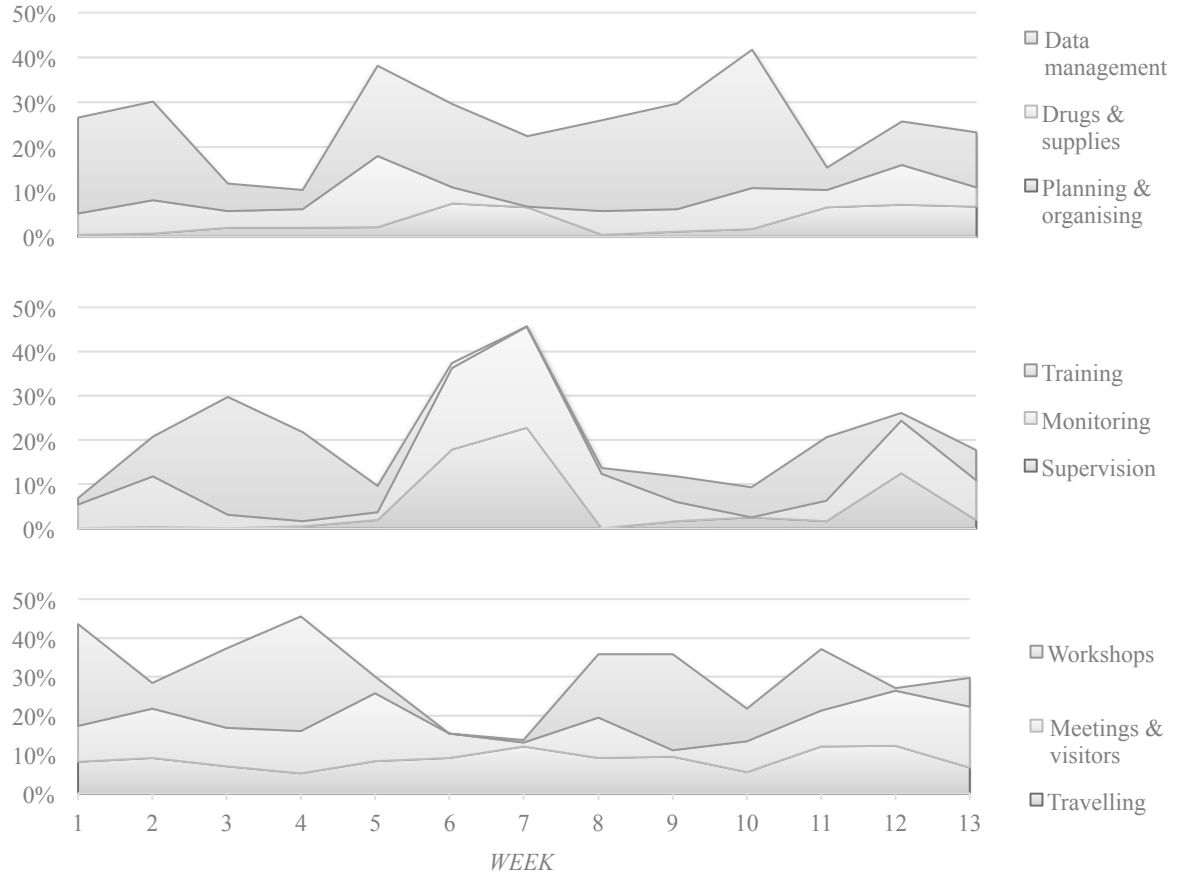

Figure 5.2. Weekly mean time use of district health managers over the three-month study period, in percentage. 1st IC: First immunization campaign; 2nd IC: Second immunization campaign.

5.4. Discussion

This study shows that district health managers in Ghana use substantial amounts of their working time in only few activities, and that a vertical immunization program and its specific activities greatly influenced their time use. Data management is definitely the activity with the highest proportion of time use relative to mean working time, although it is primarily a major activity for technical managers. Other activities of district health managers with higher proportions of time use are monitoring, supervision, training of staff, financial management, meetings and visitors, workshops, and travelling. We have shown that time use of these activities varies substantially across different managerial cadres and over time.

Table 5.4. Percentage time use across different types of district health managerial cadres by type of activity

Activity	*DDHS*	*PHN*	*DCO*	*HIO*	*NO*	*ADM*	*ACC*	*SO*	*P*[a]
Planning & organizing	2.8%	4.0%	5.7%	3.0%	2.7%	8.1%	0.9%	1.4%	0.003*
Monitoring	6.2%	11.2%	10.1%	11.2%	6.1%	7.9%	4.7%	12.3%	0.005*
Data management	4.2%	29.1%	28.6%	28.3%	21.7%	2.5%	0.5%	2.0%	< 0.001**
HR Management	0.0%	1.1%	0.0%	2.1%	0.4%	13.1%	0.4%	0.0%	< 0.001**
Supervision	6.8%	6.8%	5.4%	6.1%	4.1%	7.9%	1.4%	7.2%	0.061
Training of staff	7.4%	6.2%	9.0%	6.4%	22.8%	2.1%	2.1%	0.5%	< 0.001**
Drug & supply management	0.7%	2.8%	4.1%	1.2%	0.8%	0.4%	1.0%	46.8%	< 0.001**
Financial management	0.5%	0.7%	2.1%	0.2%	1.8%	1.3%	47.0%	0.1%	< 0.001**
Meetings & visitors	15.6%	10.0%	7.4%	9.2%	5.8%	10.6%	8.7%	4.6%	< 0.001**
Attending workshops	23.2%	11.3%	12.8%	13.7%	13.8%	11.7%	6.2%	1.6%	0.002*
Administration	14.6%	0.8%	1.2%	1.6%	0.3%	16.8%	1.0%	0.0%	< 0.001**
Clinical activities	3.5%	2.0%	0.9%	0.3%	1.5%	0.3%	0.0%	0.1%	0.493
Travelling	10.9%	8.0%	8.1%	8.8%	5.9%	8.2%	10.1%	13.1%	< 0.001**
Non-productive activities	1.7%	3.4%	2.3%	1.9%	2.8%	3.7%	3.1%	6.5%	0.076

[a]Kruskal-Wallis test; *$P < 0.01$; **$P < 0.001$.
DDHS: District Directors of Health Services; PHN: Public Health Nurses; DCO: Disease Control Officers; HIO: Health Information Officers; NO: Nutrition Officers; ADM: Health Services Administrators; ACC: Accountants; SO: Supply Officers

This study had limitations. Using retrospective interviews instead of direct observations of activities are a source of social desirability bias. This has been shown by Bratt et al. (1999), who compared four approaches for measuring time use and who found that respondents overstated productive time and underreported non-productive time in time use interviews, as compared to direct observation of the time and motion method. Underreporting of non-productive activities could have also occurred in our study, as these were with around 3% of mean time use rather low. Sonnenberg et al. (2012) stressed that survey methods for measuring time use bear the risk of over- and underestimations of time use, especially when respondents are asked to estimate the average time spent on activities. We have minimized this risk by doing repeated daily retrospective interviews, and, therefore, did not ask our respondents for their average time use, but to report actual time use of their daily activities. Compared to direct observation, self-reporting methods for measuring time use are also prone to recall bias, in a way that activities of short duration, such as short phone calls, signing of a letter, or short conversations with colleagues cannot be accurately captured, as respondents tend to underreport these activities during interviews (Burke et al., 2000, Sonnenberg et al., 2012). This is especially the case, when short activities are conducted simultaneously to activities with a longer duration (Budlender, 2007). We addressed this problem by probing for short activities during time use interviews, although statements for time use in such activities were likely to be inaccurate estimations, as these were often distributed randomly throughout the day. However, comparative research suggests that bias from self-reported methods for collecting time use data are not necessarily greater than the observer-induced bias of the time and motion method (Burke et al., 2000).

Although not a managing duty, many of the different district health managerial cadres are also involved in clinical activities. The majority of the clinical activities recorded in our study are with regard to administering drugs to clients, and health promotion activities such as talking in radio programs on health issues. For those managers with a medical or nursing background such as the DDHSs and public health nurses, clinical work can also involve attending to in and out-patients, and – in the case of medical doctors – surgery. However, in contrast to facility health managers who often continue working in their health professions beside their managing duties (Daire and Gilson, 2014), this study has shown that district health managers are first and foremost managers, who may sometimes also engage in clinical work.

According to results we presented in a previous study, health workers in Ghana were dissatisfied with their work environment, but rather satisfied with in-service training and supervision (Bonenberger et al., 2014). Dissatisfaction with the work environment was mainly related to the lack of essential medical equipment and the condition of workplaces in health facilities. Agyepong et al. (2004) pointed out a decade ago that this lack was not a problem of absolute unavailability of resources, but rather one of inadequate management and administration. Our current findings suggest that this problem still persists, as district health managers severely neglect the management of buildings and equipment and use only a fraction of their working time in such activities. In contrast, the higher levels of health workers' job satisfaction with in-service training and supervision could be a result of district health managers allocating greater proportions of their working time to these activities. This further adds to the notion that good management practices of district health managers can influence job satisfaction of health workers, thereby improving staff retention (Rouleau et al., 2012, Blaauw et al., 2013, Bonenberger et al., 2014).

Travelling is an activity in which district health managers spend a substantial amount of their working time. This finding indicates the high mobility of these cadres, as they work at the interface between the strategic and the operational levels of the health system requiring them to collaborate with all levels from the national to the sub-district level (Graham et al., 2013, Mkoka et al., 2014). In our study, district health managers frequently travelled to the Ministry of Health and other ministries in Ghana's capital Accra for information delivery and to the RHA in Koforidua to exchange or deliver information, and to attend workshops and meetings. At the district and sub-district levels frequent travelling is mandatory in order to provide on-site services to health facilities such as supervision and monitoring and to liaise with other stakeholders of the district health system.

The high percentage of time district health managers use for data management raises the question whether the generated information is effectively used for priority setting, daily management and decision-making. Since 2012, Ghana uses a web-based District Health Information Management System (DHIMS), which was introduced to improve the quality of the data by shortening the data acquisition process (Kayode et al., 2014). Although empirical research suggests that DHIMS data is relatively accurate and reliable for use (Amoakoh-Coleman et al., 2015), no research has been published to date on how district health managers in Ghana actually use this data. However, research conducted by PERFORM suggests that the

DHIMS is used for problem identification and decision-making at district level, as, for instance, district health managers identified low immunisation rates through DHIMS as being a problem and, in consequence, initiated various actions to increase coverage.

Our results suggest that time use practices of district health managers in Ghana are greatly influenced by vertical programs. Although we acknowledge the positive impacts of vertical immunization programs on population health and health systems in general (Oliveira-Cruz et al., 2003, Closser et al., 2014), it was also pointed out that vertical programs in low- and middle-income countries tend to absorb human resource- as well as material resource capacities during campaigns thereby affecting the delivery of mainstream health services (Smith and Bryant, 1988, Conn et al., 1996). This is also indicated by our data, as vertical programs limit the ability of district health managers to adequately respond to the needs of the district health systems, as the entire capacities of the study DHAs were allocated to the immunization campaigns while these were carried out. Given that this study coincided with the annual polio immunization schedule and the four-year measles/rubella immunization schedule our findings need to be understood in the light of these two vaccination campaigns, although activities related to other vertical programs (e.g. national malaria control program) may request similar time allocation patterns during the course of the year.

The high amounts of time used in only few activities by at the same time neglecting other activities suggest that district health managers may not practice efficient time management. However, inefficient time use practices frequently have external causes. For instance, data management often demand high proportions of working time, because district health managers are receiving routine data from health facilities in the sub-districts, requiring them to wait in their offices until all facility heads deliver their data during which they usually only conduct minor activities such as email writing and phone calls. As the regional and national levels do not have personnel that coordinate workshops it frequently happens that district health managers spend several days on different workshops, thereby neglecting their district work schedules. The neglect of certain important management activities such as managing of human and material resources is due mainly to the fact that managerial cadres responsible for these activities, namely human resource officers and health services administrators, are unavailable or not available in all the study districts. As Ghana does not currently have a nationwide electronic human resource management system (HRMS), for district health managers managing HR, travelling demand a high proportion of their working time, because

they frequently need to travel to the capital Accra in order to effect changes in the Integrated Personnel and Payroll Database (IPPD) for district staff such as salaries and promotions.

We anticipate that there is a potential for efficiency gains in time allocation for district health managers in Ghana, especially with regard to data management and attending workshops, each contributing over 10% to total mean time use, but reaching up to around 30% in weekly variations. For instance, given that reporting of routine health data is paper-based at sub-district level, it is not surprising that district health managers spend much time with receiving, collating, and entering this data. Extending the DHIMS to the sub-district level could improve efficiency in time use. However, this would entail substantial financial investments in computer equipment and training, and might not be feasible for remote areas with limited Internet access. The continuous education system of the GHS currently seems to be extremely fragmented and not structured, as was exemplified through the high frequency of workshops organized by a variety of organizations and which were unevenly distributed over the study period. Better coordination of workshops at the national and regional levels could result in improved time allocation at district level. Except for the DDHS, job descriptions are currently not available for DHMT cadres in the GHS. These should be developed and widely distributed within the GHS so to ensure that all district health managerial cadres are fully aware of their work tasks. This would also allow the identification of training needs of individual DHMT members, which could lead to efficiency gains in the long run (Dieleman et al., 2006). The introduction of an electronic HRMS, which is currently in pilot phase in the GHS, may also result in efficiency gains.

This study has shown that district health managers use a high share of their working time for activities related to vertical programs and that these encourage the supervision of health service delivery at peripheral level. It would be interesting to study whether such visits also allow simultaneous activities, such as supportive supervision for health service areas not related to vertical programs while carrying these out. Also the perceptions of the district health managerial workforce on the causes of inefficient time use and on possible means to improve efficiency have not been the focus of this study. We will address such research questions in a forthcoming manuscript on DHMT efficiency.

In conclusion, our findings suggest that efficiency gains in time use are possible for district health managers. However, these are unlikely to be achieved without improvements within the general health system, as inefficiencies seem to be largely caused by external factors.

Competing interests

The authors declare that no competing interests exist.

Authors' contributions

Conceived and designed the experiments: MB MA PA XBC KW; Performed the experiments: MB; Analysed the data: MB; Contributed reagents/materials/analysis tools: MB KW XBC; Wrote the manuscript: MB; Contributed to the final publication: MB MA PA XBC KW

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6

The effects of health worker motivation and job satisfaction on turnover intention in Ghana: a cross-sectional study*

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Abstract

Background: Motivation and job satisfaction have been identified as key factors of health worker retention and turnover in low- and middle-income countries. District health managers in decentralised health systems usually have a broadened decision space that enables them to positively influence health worker motivation and job satisfaction, which in turn impacts on retention and performance at district-level. The study explored the effects of motivation and job satisfaction on turnover intention and how motivation and satisfaction can be improved by district health managers in order to increase retention of health workers.

Methods: We conducted a cross-sectional survey in three districts of the Eastern Region in Ghana and interviewed 256 health workers from several staff categories (doctors, nursing professionals, allied health workers and pharmacists) on their intentions to leave their current health facilities as well as their perceptions on various aspects of motivation and job satisfaction. The effects of motivation and job satisfaction on turnover intention were explored through logistic regression analysis.

Results: Overall, 69% of the respondents reported to have turnover intentions. Motivation (OR=0.74, 95% CI: 0.60−0.92) and job satisfaction (OR=0.74, 95% CI: 0.57−0.96) were significantly associated with turnover intention and higher levels of both reduced the risk of health workers having this intention. The dimensions of motivation and job satisfaction significantly associated with turnover intention included career development (OR=0.56, 95% CI: 0.36−0.86), workload (OR=0.58, 95% CI: 0.34−0.99), management (OR=0.51. 95% CI: 0.30−0.84), organisational commitment (OR=0.36, 95% CI: 0.19−0.66), and burnout (OR=0.59, 95% CI: 0.39−0.91).

Conclusions: Our findings indicate that effective human resource management practices at district level influence health worker motivation and job satisfaction, thereby reducing the likelihood for turnover. Therefore it is worth strengthening human resource management skills at district level and supporting district health managers to implement retention strategies.

Key words: Motivation, Job satisfaction, Turnover intention, Retention, Health worker, Human resource management, Rural and remote areas, Ghana, Sub-Saharan Africa

6.1. Background

Improving the retention of the health workforce in rural and remote areas is of concern for all countries worldwide (World Health Organization, 2010). Improved retention of health workers contributes to the provision of quality health care, because it builds up competencies, optimises team relations, and strengthens the relationship of health workers with local communities (Buykx et al., 2010). In contrast, poor retention or high staff turnover negatively affects health care by increasing workload, undermining team morale, creating disruptions and inefficiencies in work processes, and causing a loss of institutional knowledge (World Health Organization, 2006).

Several factors influence the decision of health workers to stay in or leave their posts. Among these are low pay, poor career structures, lack of opportunities for postgraduate training, and inadequate working and living conditions (Eastwood et al., 2005, Buchan and Aiken, 2008, Lehmann et al., 2008, Keane et al., 2012). The challenge of retaining health workers is greatest in rural and remote areas, because health practitioners in these areas often face higher workloads, unsustainable work environments, and poor infrastructure, causing them to leave the workplace in search of more satisfactory working and living conditions in urban areas or abroad (Mbemba et al., 2013).

This study was carried out within the framework of the health human resource management (HRM) intervention "Supporting decentralised management to improve health workforce performance in Ghana, Uganda and Tanzania (PERFORM)". The intervention aims at identifying ways of strengthening district management in order to address health workforce inadequacies by improving health workforce performance in sub-Saharan Africa. By taking into account national and local human resource (HR) and health system (HS) policies and practices already in place, "bundles" of HR/HS strategies – such as task shifting, training, supervision and monitoring – are developed with respect to specific health workforce problems in the study districts. These strategies must be feasible within the context and affordable within the districts' budgets to strengthen priority areas of health workforce performance (Mshelia et al., 2013).

Typically an important share of HRM activities takes place at district level. In countries with implemented health sector decentralisation policies, district health managers have, as Bossert (Bossert and Beauvais, 2002) calls it, a broadened "decision space", which refers to effective

decision-making or range of choice within the various functions of finance, service organisation, human resources, targeting and governance. Although key functions of HRM – such as recruitment, remuneration patterns, and promotion – often remain highly centralised (Mathauer and Imhoff, 2006), district health managers in decentralised contexts have the potential to improve retention and performance outcomes in their districts. Their powers include exact posting and performance management such as in-service training, supportive supervision, and staff appraisal (Rowe et al., 2005, Dieleman et al., 2006, Dieleman et al., 2009). Generally it is assumed that these aspects result in lower turnover respectively improved retention at district level.

Work motivation and job satisfaction have been identified as key factors of health worker retention and turnover in low- and middle-income countries (LMICs) (Tzeng, 2002, Willis-Shattuck et al., 2008, Luboga et al., 2011, Adzei and Atinga, 2012, Rouleau et al., 2012, Blaauw et al., 2013, Choi et al., 2013). Motivation has been described as a set of psychological and transactional processes: psychological, because it gives behaviour purpose and direction; transactional, because it is the result of the interactions between individuals and their work environment (Franco et al., 2004). The conceptual framework of health worker motivation proposed by Kanfer (1999) and Franco et al. (2002) describes these motivational processes as being affected by determinants of motivation (e.g. incentives, values, expectations) and mediated into motivational outcomes such as performance and job satisfaction.

As motivation per se cannot be observed directly (Bennett et al., 2001), previous research has concentrated on the determinants and outcomes of motivation (Willis-Shattuck et al., 2008, Dieleman et al., 2009, Lu et al., 2012). Willis-Shattuck et al. (2008) conducted a systematic review on motivation and retention in LMICs and identified monetary and non-monetary incentives as core factors affecting motivation and retention in these countries. This is in line with the WHO, which recommended a mix or "bundle" of interventions in the areas of education, regulation, financial incentives, and professional and personal support in order to improve retention of health workers in rural and remote areas (World Health Organization, 2010). Many of these interventions are targeting at improving health worker motivation, job satisfaction and performance.

Job satisfaction is a frequently studied motivational outcome in health systems research. Due to its relation to performance and turnover, it is of concern to researchers and health service managers alike (Saari and Judge, 2004, Coomber and Barriball, 2007, Patterson et al., 2010). As Lu et al. (2012) have pointed out, job satisfaction depends both on the nature of the job and on the expectations health workers have of what their job should provide, and is thus the affective orientation that employees have towards their work. Job satisfaction can be measured globally or in a multi-facetted way, with the former approach being used when the interest is on overall attitude toward the job, and the latter when specific aspects of job dissatisfaction are evaluated (Coomber and Barriball, 2007). Important facets of job satisfaction having been identified in previous research include salary and benefits, career development, in-service training, work relationships, management, work environment, recognition and supervision (Agyepong et al., 2004, Hagopian et al., 2009, Rouleau et al., 2012, Marinucci et al., 2013).

So to explore health worker motivation and job satisfaction and their effects on turnover intention, we conducted a cross-sectional survey in three districts of the Eastern Region in Ghana. A better knowledge of factors that impact on workforce performance was needed in order to inform district health managers, who are essential at the operational level of health systems and important drivers for performance outcomes in their districts.

6.2. Methods

6.2.1. Study setting

The study was carried out in the Eastern Region of Ghana in the Akwapim North, Upper Manya Krobo and Kwahu West districts. Akwapim North is a mostly rural district containing also some towns and is located in the proximity of Ghana's capital Accra as well as the region's capital Koforidua. Subsistence and commercial farming is the predominant occupation, although manufacturing, extractive industries and small-scale industries also exist (Akwapim North District Assembly, 2012). In Kwahu West around 50% of the population is concentrated in the district capital Nkawkaw, a well-known commercial town. The rest of the settlements are small communities located mainly along the Accra-Kumasi highway that crosses the district. Although about 50% of the population are subsistence farmers, trade and commerce are also important occupations (Kwahu West Municipal Health Directorate, 2012). Upper Manya Krobo is predominantly rural and is regarded as one of the highly underdeveloped districts in the Eastern Region with poor infrastructure. The district

comprises Asesewa, a small town and the capital of the district, and 198 rural communities. Around 80% of the population are subsistence farmers and fishers, the rest mainly engage in commerce and small-scale industries (Upper Manya Krobo District Health Directorate, 2013).

A total of 939 public and private non-profit health workers were working in the study districts during data collection in 2012, including administrative and support workers like accountants and labourers. The majority of these health workers were working in 2 public hospitals and 1 private faith-based non-profit hospital. The rest were distributed between the 22 health centres, and 37 Community-based Health Planning and Services (CHPS) facilities.

CHPS is a primary health care programme in Ghana, which was pilot-tested in the early 1990s and then rolled-out as a national policy from the late 1990s onwards in order to increase health service accessibility of people living in rural and remote areas (Nyonator et al., 2005, Binka et al., 2007). CHPS facilities are staffed by community health nurses (CHN), who provide mobile doorstep health services to community residents.

6.2.2. Data collection instrument

We used a structured questionnaire to collect quantitative data on motivation, job satisfaction and turnover intention (see Appendix 9.5). In order to measure turnover intention we asked health workers, whether they had intentions to leave their current health facility, for which only dichotomous responses (yes/no) were possible. Job satisfaction was measured with an instrument, which – on the basis of the Measure of Job Satisfaction (MJS) (Spector, 1985) and the Job Descriptive Index (JDI) (Gregson, 1990) – was originally developed by Fournier et al. (2005) for application in Mali. The tool was then developed further and validated for research on job satisfaction of various types of health care workers in francophone Western Africa (Rouleau et al., 2012, Faye et al., 2013). For the present study we used the version published by Rouleau et al. (2012). As the instrument was originally written in French, we translated the questions into English. The instrument was composed of 39 five-point Likert-scale items, ranging from 1, very unsatisfied, to 5, very satisfied, and where grouped into 9 facets of job satisfaction, namely “remuneration”, “work environment”, “workload”, “tasks”, “working relations”, “in-service training”, “management”, “morale”, and “job security”.

For the measurement of motivation we used the instrument from Mbindyo et al. (2009), who adapted it from Bennett at al. (2001) and Kanfer (1999) to measure motivation in district

hospitals in Kenya. The instrument was recently validated by Mutale et al. (2013) for the use at community level in Zambia. The instrument was composed of 23 five-point Likert scale items, ranging from 1, fully disagree, to 5, fully agree, and where grouped into 7 motivational outcome constructs, namely "general motivation", "burnout", "job satisfaction", "intrinsic job satisfaction", "organisational commitment", "conscientiousness", and "timeliness". For the "job satisfaction" construct we used the overall job satisfaction score instead of the original items of the motivation instrument as described by Mbindyo et al. (2009). This was done so to decorticate the relationship between motivation and job satisfaction in our motivation construct, where job satisfaction is an outcome.

We pre-tested the questionnaire in the Eastern Regional Hospital in Koforidua, during which we focused particularly on the comprehensibility and relevance of the questions for all types of health workers included in the study. The questionnaire was reviewed after the pre-test, mainly to localise some of the demographic and work-related questions to the Ghanaian context. In order to ensure consistency across interviewers the pre-test was also used to train field assistants on interview techniques.

6.2.3. Sampling strategy and data collection

The sampling was based on a staff inventory such as established by District Health Management Teams (DHMT). We did not include the administrative and support workforce and based the sampling on a list containing 626 clinical, nursing, midwifery, and pharmacy staff, and the allied health staff. Based on Cochran's sample size formula for categorical data we estimated the required sample size to be around 300.

In order to receive a representative sample of the three districts we applied a systematic sampling strategy, for which we reordered the list alphabetically by health facility and then selected every second health worker from this list. When a health worker was not present at a health facility when the study team arrived or refused to participate in the study, we selected the next person from the list. When this person was also not available for one or the other reason we did not choose another participant.

Data collection was carried out between September and November 2012 by the lead author and two field assistants. In total, we interviewed 256 health workers in 59 of the 62 (95%) health facilities in the three study districts. The majority of the interviewed health workers

were working in the three district hospitals (n=158), the rest worked in health centres and CHPS facilities (n=98) at sub-district level. Most of the visited facilities were public health facilities of the Ghana Health Service (GHS). Only the district hospital of Kwahu West belonged to the Christian Health Association of Ghana (CHAG), a faith-based private non-profit organisation.

6.2.4. Statistical analysis

We entered the data using Epi Info 7 and used STATA 13 for the statistical analysis. Because we were only interested in voluntary turnover, we excluded health workers from the analysis who expressed turnover intention due to retirement (n=28). Missing data and "do not know"-responses were imputed with the mean score of the respective items. As some of the statements of the motivation instrument were negatively worded, we reversed responses to negative items so that higher scores indicated disagreement to these statements.

We conducted two separate factor analyses in order to confirm the latent factors reported by Rouleau et al. (2012) and Mbindyo et al. (2009). The 9 latent factors of the job satisfaction instrument as well as the 7 factors of the motivation instrument were confirmed. However, items loading under 2 factors of the job satisfaction instrument could rather be described as "career development" and "supervision", for which reason we dropped "job security" and "working relations" as used in the original instrument and retained the newly identified factors (see Appendix 9.3 and 9.4 for the results of the factor analyses).

In the univariate analysis we tested for statistically significant associations using Chi-square tests for binary and categorical variables. The Wilcoxon rank-sum test and the Kruskal-Wallis test were used to examine differences of numeric variables between two or more groups, as appropriate. Spearman's rank correlation was used to assess the relationship between turnover intention and the overall motivation and job satisfaction scales as well as their respective sub-scales. We also conducted several univariable logistic regression analyses to assess associations of turnover intention with motivation, job satisfaction, and demographic and work-related characteristics.

For the multivariate analysis we fitted several multiple logistic regression models by applying a combination of forward stepwise logistic regression and purposeful selection of variables. We included all variables in the forward stepwise regressions, which we found to be

significantly associated with turnover intention in the univariate analysis. The significance level for entering a variable into the models was set to 0.15, and to 0.2 for removal from the models. We then fitted logistic regression models by including all variables that had been found through stepwise selection and assessed the significance of these variables through Wald-p statistics. All variables with $p \geq 0.05$ were eliminated from the models. We controlled for confounding by re-entering all excluded variables, which had marked effects on the coefficients ($\Delta\hat{\beta}$>20%) of the variables remaining in the models. In all multiple logistic regression models, profession, type of facility and district were retained as fixed effects.

6.2.5. Ethical considerations

As PERFORM is coordinated by the Liverpool School of Tropical Medicine (LSTM), ethical clearance for the whole study was obtained from the Research Ethics Committee of LSTM (ID No.: 12.09). For the present study we obtained additional ethical clearance from the Ghana Health Service Ethical Review Committee (ID No.: GHS-ERC: 13/05/12). We sought written informed consent before interviewing any of the respondents. We anonymised all personal data by assigning ID-numbers to the study participants. Only these numbers were used on the questionnaires, for data entry, and in the subsequent analysis instead of names.

6.3. Results

6.3.1. Characteristics of the health workforce

Table 6.1 presents the characteristics of the health workforce, with comparisons made between districts. The majority of the health workers consisted of females (82.4%) and persons aged under 40 years (64.9%). There was a noticeable shortage of middle-aged health workers in Upper Manya Krobo, as most respondents were below 30 years of age (67.9%), indicating problems with attraction and retention of experienced health professionals. Work experience was rather low as median time spent in the profession by health workers across all districts was 4 years, ranging between 2 years (Upper Manya Krobo) and 6 years (Kwahu West). The majority of all health workers worked 3 years or less in their current health facility (53.2%), with the majority of respondents from Upper Manya Krobo working only 1 year or less in their present facility (50.9%). About 72% of the health workforce working in the three study districts had a certificate, 18% had a diploma and 10% had earned a higher degree (bachelor's, master's or doctoral degree). About 62% of the health workforce worked in one of the three district hospitals and 38.3% in health centres or CHPS facilities. With 82.9%, the

Table 6.1. Characteristics of the health workforce

Demographic and work related characteristics	*All respondents (n=256), n (%)*	*District, n (%)*			*P*[†]
		Akwapim North (n = 91, 36%)	*Upper Manya Krobo (n = 53, 21%)*	*Kwahu West (n = 112, 44%)*	
Female gender	211 (82.4)	74 (81.3)	43 (81.1)	94 (83.9)	0.855
Age (years)					
< 30	121 (47.3)	37 (40.7)	36 (67.9)	48 (42.9)	0.038*
30-39	45 (17.6)	17 (18.7)	6 (11.3)	22 (19.6)	
40-49	23 (9.0)	9 (9.9)	1 (1.9)	13 (11.61)	
≥ 50	67 (26.2)	28 (30.8)	10 (18.87)	29 (25.9)	
Marital status					
Single	108 (42.4)	39 (42.9)	36 (67.9)	33 (29.7)	<0.001*
Married	128 (50.2)	46 (50.6)	15 (28.3)	67 (60.4)	
Divorced/widowed	19 (7.5)	6 (6.6)	2 (3.8)	11 (9.9)	
Qualification					
Certificate	183 (71.5)	68 (74.7)	43 (81.1)	72 (64.3)	0.005*
Diploma	47 (18.4)	9 (9.9)	9 (17.0)	29 (25.9)	
Higher	23 (10.2)	14 (15.4)	1 (1.9)	11 (9.8)	
Years in profession, median	4	4	2	6	0.001*‡
Years working in current health facility					
≤ 1	79 (30.9)	33 (36.3)	27 (50.9)	19 (17.0)	<0.001*
> 1 and ≤ 3	57 (22.3)	20 (22.0)	15 (28.3)	22 (19.6)	
> 3 and ≤ 5	35 (13.7)	11 (12.1)	5 (9.4)	19 (17.0)	
> 5	85 (33.2)	27 (29.7)	6 (11.3)	52 (46.4)	
Type of health facility					
Hospital	158 (61.7)	50 (55.0)	24 (45.3)	84 (75.0)	<0.001*
Health centre/CHPS	98 (38.3)	41 (45.0)	29 (54.7)	28 (25.0)	
Profession					
Doctors	11 (4.3)	4 (4.4)	1 (1.9)	6 (5.3)	0.004*
Nursing professions	212 (82.9)	74 (81.4)	49 (92.5)	89 (79.4)	
Registered nurses	48 (18.8)	17 (18.7)	9 (17.0)	22 (19.6)	
Midwives	34 (13.3)	11 (12.1)	7 (13.2)	16 (14.3)	
Auxiliary nurses	34 (13.3)	16 (17.6)	10 (18.9)	8 (7.1)	
CHNs	63 (24.6)	21 (23.1)	22 (41.5)	20 (17.9)	
Health care assistants	33 (12.9)	9 (9.9)	1 (1.9)	23 (20.5)	
AHW/Pharmacists	33 (12.9)	13 (14.2)	3 (5.7)	17 (15.2)	

*statistical significance $p < 0.05$; †Chi-square test; ‡Kruskal-Wallis test

CHPS: Community-based health planning and services; CHN: Community health nurse; AHW: Allied health worker

nursing and midwifery professions were the most available cadres in the districts' health systems and doctors were the least available with 4.3% of the workforce.

6.3.2. Motivation and job satisfaction mean scores and turnover intention

Table 6.2 shows the overall motivation and job satisfaction mean scores as well as the means of their respective sub-scores, with comparisons made between persons with and without turnover intention. Health workers achieved an overall motivation mean score of 3.65 (out of 5). With regard to the motivation sub-scores, the lowest mean scores were reached in job satisfaction (3.15) and burnout (3.29) and the highest mean scores in timeliness and attendance (4.15), and conscientiousness (4.35). Concerning job satisfaction, health workers achieved an overall job satisfaction mean score of 3.15 (out of 5). The least job satisfaction mean sub-scores were remuneration (2.12) and career development (2.58). The highest mean sub-scores were reached in the areas of supervision (3.81) and morale (3.85).

Overall, 69% [95% CI, 63-75] of the respondents in the three study districts reported to have intentions to leave their current health facility. When comparing the mean job satisfaction and motivation scores and sub-scores according to turnover intention, significant differences ($p<0.05$) indicated that job satisfaction and motivation was lower for health workers having turnover intentions than for those not having turnover intentions.

6.3.3. Determinants of turnover intention

Table 6.3 shows the crude odds ratios for socio-demographic and work-related factors associated with intention to leave the current health facility. The district was significantly associated with turnover intention, with the odds of having this intention being 5.11 times (95% CI: 2.05−12.73) greater for health workers from Upper Manya Krobo than for health workers from Akwapim North (baseline). For health workers from Kwahu West the odds were 1.87 times (95% CI: 1.00−3.47) greater than for those working in Akwapim North. Living away from one's family (OR = 4.73, 95% CI: 2.45−9.15) and working in a health centre or CHPS facility (OR = 2.02, 95% CI: 1.10−3.67) also increased the odds, while being divorced or widowed (OR = 0.15, 95% CI: 0.04−0.52) decreased the odds of turnover intention. Being between 40 and 49 years of age (OR = 0.15, 95% CI: 0.06−0.39) and 50 years of age or older (OR = 0.16, 95% CI: 0.07−0.36) considerably decreased the odds, compared to those being younger than 30 years of age. Also working longer than 5 years (OR = 0.12, 95% CI: 0.06−0.26) in the current health facility considerably decreased the odds of

intention to leave, compared to those working only 1 year or less in the present health facility. With regard to profession only the results for the health and ward assistants were statistically significant at a 5% level. Members of this cadre were considerably less likely of having turnover intentions (OR = 0.23, 95% CI: 0.08−0.62) than the registered nurse workforce (baseline).

Table 6.2. Motivation and job satisfaction mean scores and their relation to turnover intention

		Turnover intention, mean ± SD		
Scales and subscales	*Total (n = 228) mean ± SD*	*yes (n = 157, 69%)*	*no (n = 71, 31%)*	*P†*
Overall motivation score	**3.65 ± 0.38**	**3.58 ± 0.38**	**3.81 ± 0.31**	**<0.001***
Job satisfaction	3.15 ± 0.46	3.08 ± 0.49	3.30 ± 0.37	0.001*
Burnout	3.29 ± 0.99	3.20 ± 0.99	3.49 ± 0.95	0.02*
General motivation	3.30 ± 0.86	3.21 ± 0.88	3.52 ± 0.77	0.008*
Organisational commitment	3.31 ± 0.75	3.14 ± 0.76	3.68 ± 0.57	<0.001*
Intrinsic job satisfaction	4.02 ± 0.51	3.97 ± 0.57	4.13 ± 0.35	0.036*
Timeliness and attendance	4.15 ± 0.53	4.13 ± 0.53	4.20 ± 0.54	0.263
Conscientiousness	4.35 ± 0.42	4.35 ± 0.43	4.35 ± 0.41	0.929
Overall job satisfaction score**	**3.15 ± 0.46**	**3.08 ± 0.49**	**3.30 ± 0.37**	**0.001***
Remuneration	2.12 ± 0.72	2.07 ± 0.69	2.25 ± 0.77	0.16
Career development	2.58 ± 0.94	2.47 ± 0.93	2.82 ± 0.94	0.008*
Management	2.76 ± 0.83	2.65 ± 0.85	2.98 ± 0.75	0.008*
Work environment	2.87 ± 0.76	2.79 ± 0.75	3.06 ± 0.76	0.012*
Workload	3.12 ± 0.79	3.07 ± 0.83	3.21 ± 0.69	0.304
In-service training	3.53 ± 0.90	3.52 ± 0.92	3.56 ± 0.86	0.843
Tasks	3.67 ± 0.71	3.61 ± 0.74	3.81 ± 0.61	0.028*
Supervision	3.81 ± 0.71	3.75 ± 0.74	3.94 ± 0.64	0.085
Morale	3.85 ± 0.63	3.75 ± 0.67	4.06 ± 0.46	0.001*

*statistical significance p < 0.05; †Wilcoxon rank-sum test
**all sub-scales refer to satisfaction with the dimensions under review
Maximum score is 5. A higher score indicates higher levels of motivation and job satisfaction.

6.3.4. The effect of motivation and job satisfaction on turnover intention

Table 6.4 shows the results of the multivariable logistic regression including the overall motivation and job satisfaction scales as well as demographic and work-related factors. Motivation (OR = 0.74, 95% CI: 0.60−0.92) and job satisfaction (OR = 0.74, 95% CI: 0.57−0.96) were both significantly associated with turnover intention, indicating that health

workers with higher levels of motivation and job satisfaction were less likely to having intentions to leave their current health facilities. As we found in the univariable model, also working more than 5 years (OR = 0.08, 95% CI: 0.02−0.32) in the present facility considerably decreased the odds of having turnover intention. The odds of turnover intention

Table 6.3. Crude odds ratios for the effect of socio-demographic and work-related factors on turnover intention

Socio-demographic and work related factors	*OR*	*95% CI*	*P*†
Female	1.08	0.53−2.21	0.824
Age group			
<30 years	1	–	–
30-39 years	0.73	0.32−1.64	0.442
40-49 years	0.15	0.06−0.39	**<0.001***
≥ 50	0.16	0.07−0.36	**<0.001***
Marital status			
Single	1	–	–
Married	0.68	0.38−1.24	0.213
Divorced/widowed	0.15	0.04−0.52	**0.003***
Living away from family	4.73	2.45−9.15	**<0.001***
Years working in current health facility			
≤ 1	1	–	–
> 1 and ≤ 3	0.86	0.36−2.07	0.739
> 3 and ≤ 5	0.80	0.29−2.21	0.667
> 5	0.12	0.06−0.26	**<0.001***
Profession			
Registered nurses	1	–	–
Doctors	1.23	0.28−5.44	0.777
Midwives	0.93	0.32−2.62	0.888
Auxiliary nurses	1.52	0.52−4.45	0.440
CHNs	2.19	0.87−5.53	0.096
Health/ward assistants	0.23	0.08−0.62	**0.003***
AHW/Pharmacists	1.31	0.42−4.11	0.637
Type of facility			
Hospital	1	–	–
Health centre/clinic	2.02	1.10−3.67	**0.022***
District			
Akwapim North	1	–	–
Upper Manya Krobo	5.11	2.05−12.73	**<0.001***
Kwahu West	1.87	1.00−3.47	**0.049***

*statistical significance p<0.05; †Wald-test
CHPS: Community-based health planning and services; CHN: Community health nurse; AHW: Allied health worker

Table 6.4. Adjusted odds ratios for the effect of motivation and job satisfaction on turnover intention

Risk determinants of turnover intention	*AOR*	*95% CI*	*P*[†]
Motivation score	0.74	0.60−0.92	0.006[*]
Job satisfaction score	0.74	0.57−0.96	0.025[*]
Age[‡]	0.91	0.71−1.16	0.444
Years working in current health facility			
≤ 1	1	–	–
> 1 and ≤ 3	0.45	0.14−1.44	0.179
> 3 and ≤ 5	0.55	0.16−1.90	0.348
> 5	0.08	0.02−0.32	<0.001[*]
Profession			
Registered nurses	1	–	–
Doctors	1.32	0.24−7.38	0.751
Midwives	3.16	0.81−12.34	0.098
Auxiliary nurses	1.59	0.40−6.33	0.506
CHNs	1.9	0.40−9.04	0.418
Health/ward assistants	1.76	0.46−6.77	0.411
AHW/Pharmacists	1.02	0.24−4.29	0.975
Type of facility			
Hospital	1	–	–
Health centre/clinic	1.02	0.30−3.51	0.973
District			
Akwapim North	1	–	–
Upper Manya Krobo	5.92	2.10−16.67	0.001[*]
Kwahu West	4.36	2.00−12.31	0.001[*]

[*]statistical significance p<0.05; [†]Wald-test
[‡]reported per 5 year increase in age
CHPS: Community-based health planning and services; CHN: Community health nurse; AHW: Allied health worker

for health workers in Upper Manya Krobo (OR = 5.92, 95% CI: 2.10−16.67) were almost 6 times greater than the odds for health workers in Akwapim North, which resembled the result of the univariable model. The odds of turnover intention for health workers in Kwahu West (OR = 4.36, 95% CI: 2.00−12.31) increased in the multivariable model and were around 4 times greater than for those working in Akwapim North. Age, profession and type of health facility were not significantly associated with turnover intention.

Table 6.5 shows the results of the multivariable logistic regressions for each of the dimensions of motivation and job satisfaction controlling for demographic and work-related factors. Odds ratios with significance below 1 indicated an increase in motivation and job

satisfaction and simultaneously a lower likelihood for intention to leave. With regard to the dimensions of motivation significantly associated with turnover intention, job satisfaction (OR = 0.30, 95% CI: 0.12−0.73) and intrinsic job satisfaction (OR = 0.32, 95% CI: 0.12−0.87) had the lowest odds ratios, while burnout (OR = 0.59, 95% CI: 0.39−0.91) and general motivation (OR = 0.60, 95% CI: 0.38−0.96) had the highest odds ratios. Concerning the dimensions of job satisfaction significantly associated with turnover intention, satisfaction with tasks (OR = 0.34, 95% CI: 0.17−0.65) and morale (OR = 0.40, 95%: 0.20−0.83) had the lowest odds ratios, while satisfaction with career development (OR = 0.56, 95% CI: 0.36−0.86) and workload (OR = 0.58, 95% CI: 0.34−0.99) had the highest odds ratios.

6.4. Discussion

Our study in Ghana showed that motivation and job satisfaction were significantly associated with turnover intention and that higher levels of both reduced the risk of health workers having this intention. Health workers in the study districts achieved a good mean score of overall motivation and a moderate mean score of overall job satisfaction. Moderate mean scores were also achieved in most of the motivational outcomes, but health workers rated themselves generally positive in “timeliness and attendance” and “conscientiousness”. The good mean scores achieved in these two areas, however, should be taken with caution, as it is possible that they are subject to social desirability bias, in a way that respondents were reluctant to denote themselves negative attributes, such as being inefficient or reporting late to work.

With regard to job satisfaction health workers in the study districts were least satisfied with their remuneration, career development, management and work environment. Dissatisfaction with these determinants was also reported in similar studies conducted in sub-Saharan Africa in recent years (Agyepong et al., 2004, Willis-Shattuck et al., 2008, Manafa et al., 2009, Lutwama, 2011, Rouleau et al., 2012). Even though health workers in Ghana belong to the best paid in Western Africa (Global Health Workforce Alliance, 2008a), salary levels, including benefits, are still regarded as being too low – a perception, which is also shared by health workers in other parts of Ghana (Alhassan et al., 2013, Prytherch et al., 2013).

Concerning dissatisfaction with career development it was suggested that this has much to do with the current promotion practices in Ghana, which seem to favour health workers from the urban centres over those from rural areas (Agyepong et al., 2004, Adzei and Atinga, 2012). In a qualitative study conducted by Snow et al. (2011) in Ghana, health workers also mentioned

Table 6.5. Adjusted odds ratios for the effect of job satisfaction and motivation sub-scales on turnover intention

Sub-scales	*AOR*	*95% CI*	*P†*
Motivation sub-scales			
Job satisfaction	0.30	0.12−0.73	0.008*
Burnout	0.59	0.39−0.91	0.017*
General motivation	0.60	0.38−0.96	0.034*
Organisational commitment	0.36	0.19−0.66	0.001*
Intrinsic job satisfaction	0.32	0.12−0.87	0.026*
Timeliness and attendance	0.95	0.44−2.03	0.885
Conscientiousness	0.63	0.18−2.28	0.483
Job satisfaction sub-scales**			
Remuneration	0.73	0.45−1.18	0.199
Career development	0.56	0.36−0.86	0.008*
Management	0.51	0.30−0.84	0.008*
Work environment	0.88	0.49−1.59	0.675
Workload	0.58	0.34−0.99	0.047*
In-service training	0.83	0.53−1.33	0.453
Tasks	0.34	0.17−0.65	0.001*
Supervision	0.59	0.33−1.05	0.072
Morale	0.40	0.20−0.83	0.013*

*statistical significance p<0.05; †Wald-test
**all sub-scales refer to satisfaction with the dimensions under review

disadvantages in career development as a major disincentive to accept postings to rural areas. Dissatisfaction with the work environment was mainly related to the availability of medical and technical equipment and the condition of workplaces. Agyepong et al. (2004) stressed the lack of essential tools and equipment as being among the major workplace obstacles for health workers in the public health sector. They suggest, however, that this has less to do with the absolute unavailability of resources, but rather with a lack of awareness and with capacity regarding supplies management and maintenance.

Health workers achieved a good mean score with regard to intrinsic job satisfaction, such as believing that the own work is valuable, or that something worthwhile is accomplished in the job. According to Franco et al. (2002), these factors belong to the higher-order motivating factors, meaning factors that stimulate worker motivation even in the absence of extrinsic rewards. Intrinsic job satisfaction primarily impacts on motivation, when extrinsic needs, such as good working conditions or a satisfactory salary, have been met, but also when the work is intrinsically rewarding, for instance, when it provides high social recognition or recognition

of achievement by supervisors or colleagues. In other words, being intrinsically satisfied with one's job may also lead to improved motivation, even when health workers are not satisfied with extrinsic work-related factors. This offers an explanation why overall motivation was rather good, even though health workers were dissatisfied with extrinsic factors, especially with regard to their remuneration, career development and work environment.

Although satisfaction with remuneration was low among the surveyed health workers, it had not been identified as a determinant of turnover intention in this study. In Ghana's public health sector there is no difference in base salaries between urban or rural areas. In addition, implementation of monetary and non-monetary incentives for health workers working in rural and remote areas have been seriously neglected by the government, even though experiments with such schemes, such as deprived area allowances and car incentives, have been conducted (Ministry of Health, 2007, Lievens et al., 2011). Because remuneration often remains the same also when health workers are transferred to other health facilities, remuneration alone does not seem to provide the necessary condition for health workers in Ghana having turnover intentions. This assumption is supported by Antwi and Philips (2011), who found that salary in Ghana is only a determinant of attrition for those health workers who seek employment abroad.

The results in our univariate analysis showed that being a health/ward assistant, aged older than 39 years of age, and working more than 5 years in the current health facility decreased significantly the odds for turnover intention. Health/ward assistants are typically recruited locally and it can be assumed that older health workers are often able in the course of their professional career to get posted close to their spouses, children and/or other family members. Thus, these categories of health workers are often rooted around the workplace through social and family relations and, in consequence, may have a strong rationale to keep their workplace. This was supported by the finding that the odds of having turnover intentions were much higher for health workers who lived separated from their families.

In our multivariate analysis, however, age and the health/ward assistant category were no longer significantly associated with turnover intention. We also did not find statistical evidence for differences in turnover intention among the other surveyed categories of health workers. Although there are a number of studies on turnover intention and turnover that involved different categories of health workers in sub-Saharan Africa (Manafa et al., 2009,

Yami et al., 2011, Gow et al., 2013, Tabatabai et al., 2013), we have identified only two studies that assessed the association between turnover intention and different cadres in this region through regression analysis, but the authors also did not find evidence for differences in this intention in their multivariate analyses (Blaauw et al., 2013, Fogarty et al., 2014). We did find, however, evidence for the association between turnover intention and district as the place of work. The risk of health workers having turnover intentions was greatest in Upper Manya Krobo, which is an underdeveloped rural and remote district. This finding adds to the evidence that health workers are reluctant to work in such areas, especially in countries with insufficient rural incentive schemes, which led to the current imbalance of health workers in favour of the urban centres in many parts of the world (Dussault and Franceschini, 2006, Crettenden et al., 2013).

With regard to HRM, the decision space of district health managers is limited in Ghana, as key factors for retention, such as salary, access to further education and promotions are under the authority of the national and regional administration. However, district managers have a role to play: they recommend district staffs for study courses and promotions to their superiors, which both usually lead to higher salaries after completion. Beside recommendations, it is in the authority of district managers to decide on intra-district postings, to conduct supervision and performance appraisals, and to conduct in-service training (Human Resource for Health Observer, 2009, Ghana Health Service, 2014a, Ghana Health Service, 2014b, Ghana Health Service, 2014c). Evidence compiled by the WHO (2010) suggests that these decision spaces, if performed effectively, positively influence workplace stability through improved motivation and job satisfaction.

Our findings, therefore, suggest that many of the identified motivational outcomes and job satisfaction determinants significantly associated with turnover intention can be influenced by DHMTs. Such factors include job satisfaction, organisational commitment, and satisfaction with management, career development, workload, tasks, and morale. For instance, regular in-service training that focuses on the expressed needs of rural health workers does not only improve staff competence, but it enables health workers to achieve personal goals of career advancement, increases morale and organisational commitment through an improved sense of belonging, and may contribute to reduce workload (Dieleman et al., 2006, Mathauer and Imhoff, 2006, Patterson et al., 2010, World Health Organization, 2010). Moran et al. (2014) also found in a recent review on health worker support strategies that access to in-service

training contributes to confidence in practicing in rural and remote areas, strongly alleviates professional isolation, and improves retention. Another example is supportive supervision, which is regarded as a key element of HRM for improving motivation, job satisfaction, performance and retention in rural areas (Rowe et al., 2005, Mathauer and Imhoff, 2006, World Health Organization, 2006).

The position of the district director of health services is ideally held by purpose-trained administrative personnel with qualifications in management and public health. In Ghana, however, many district directors lack these qualifications, as they are often clinicians, who did not receive formal management and leadership training (Human Resource for Health Observer, 2009). Furthermore, many DHMTs in rural areas are severely understaffed and frequently lack human resource officers and other essential managerial staffs, whose tasks are carried out by present team members in addition to their own duties. As a consequence, rural DHMTs in Ghana often lack the skills as well as the capacity to adequately managing their districts, which is reflected in the motivation and job satisfaction outcomes described in our study.

Limitations

This study was designed as a cross-sectional study of health worker motivation, job satisfaction and turnover intention, and thus provides only a snapshot of health workers' perspectives at one point in time. The causal relationships between motivation, job satisfaction, and turnover intention, therefore, cannot be further investigated with a cross-sectional design. The data might also be affected by moderacy bias as well as social desirability bias, because extreme answers to questions were regularly avoided and some results indicated that respondents might have had a tendency to answer questions in a way that would be viewed favourably by the interviewer. In addition, our decision to not follow up health workers who had been absent from their workplaces during data collection might have introduced selection bias, because those could have been the less motivated and less satisfied staff.

6.5. Conclusions

This study has demonstrated the link between motivation, job satisfaction and turnover intention in Ghana. Although the HR decision spaces at district level in Ghana are limited, our findings indicate that adequate HRM may have the potential to influence motivation and job satisfaction, which in turn will make health workers more likely to remain at their current

position. However, district managers in Ghana have typically undergone clinical training and had only limited exposure to general and HR management. In consequence there is a need for specific trainings and capacity building measures in this area so that they can adequately cope with the requirements and daily tasks of the position they hold.

So to increase motivation and job satisfaction of health workers, district managers should give emphasis on an enabling environment for example through listening to and acting on staff problems and priorities or fostering team building. They may also engage in assisting the career planning and paths of their subordinates. In-service training that is focused on the expressed needs of health workers should be conducted. A supportive supervision system should also be developed that includes experienced and dedicated health workers as supervisors. As such measures are promising in terms of improving motivation and job satisfaction it is therefore worth strengthening HRM skills at district level and supporting district health managers to implement retention strategies.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

MB designed and implemented the study, performed the statistical analysis, and drafted the manuscript. MA and PA participated in the design of the study, contributed in its implementation, and commented on draft versions of the manuscript. KW participated in the design and coordination of the study and helped to draft the manuscript. All authors read and approved the final manuscript.

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7

General discussion and conclusion

This thesis investigated management actions and factors at district level in the Eastern Region in Ghana influencing the retention and attrition of health workers. In the following sections, the methods employed and the relevance of the findings are discussed in more detail. The findings are discussed from the viewpoint of academic research as well as from the stance of policy makers.

7.1. Summary of the main findings

Given the centrality of HR in every health system and because of the interconnectedness and interactions among the health system building blocks, the focus of HRM studies should go beyond HR and also consider the wider health system and health management practices. For this reason the first study was conducted in order to identify factors affecting the work efficiency of district health managers in the PERFORM study districts.

The study was carried out by means of qualitative research and used the WHO's (2007d) leadership and management strengthening framework for the analysis of the results. The findings suggest that the efficiency of district health managers was constrained, because of limitations in all four dimensions of the framework (i.e. adequate numbers of managers, appropriate competencies, functional support systems, enabling environment). All DHAs had vacancies of essential DHMT personnel, which led to the neglect of important district health managing functions, such as HRM due to vacant positions in this area in all three districts. Moreover, managers needed to take over tasks of the vacant positions in addition to their own

duties thus contributing to inefficiencies in district health management practices through increased workload. In order to cope with the workload, managers stated to prioritise their core duties thereby neglecting their additional duties, which often led to the non-adherence to deadlines of these work tasks. Another coping strategy was to make excessive use of non-qualified staff to carry out qualified work, which was also likely to increase inefficiencies through mistakes resulting from a lack of appropriate training and skills.

Because district health managers were carrying out work tasks for which they were not trained for and thus lacked the necessary skills and experience to adequately perform these tasks, efficiency as well as the quality of work outputs was affected. In addition, managers lacked sufficient planning, communication, and time management skills, which was exemplified by the difficulties of district health managers to develop weekly DHMT work plans that contribute to reaching annual goals according to their district annual action plan. Moreover, individual daily and weekly work plans were rarely developed and if so, not shared among colleagues, which could result in duplicated activities.

DHMT efficiency was also greatly affected due to problems of cash flow from the national level to the district level often resulting in managers' inability to carry out planned work tasks in time. However, coping strategies such as conducting some of their planned activities while carrying out work tasks for vertical programs or donors, for which funds where more readily available, using IGFs from health facilities at sub-district level, or borrowing money from private sources, allowed district health managers to meet at least the deadlines for essential DHMT work tasks.

This study confirmed findings from other studies that district health managers in Ghana have only a narrow decision space in their activities that limits their ability to influence decision-making. Because decisions of the higher health system levels generally supersede those of the district level, demands from these levels have higher priorities than all activities routinely conducted by the DHMTs. This was found to be a source of inefficiencies in district health management, because frequent interruptions from the higher levels contributed to the difficulties to meet deadlines of routine DHMT activities.

The second study investigated time allocation and time use practices of district health managers in Ghana. Overall 1182 work days of 21 district health managers were recorded

over a period of three months. This quantitative study confirmed the finding from the previous study that district managers are burdened by high workloads, as the mean overtime worked by DHMT members was found to be 0.7 hours per day. District health managers allocated with 16.6% the highest proportion of their working time to data management, followed by attending workshops with 12.3%, monitoring with 9.8%, travelling with 9.6%, and attending meetings and receiving visitors with 8.5% of their time. With 1.3%, HRM activities constituted only a fraction of the work time, which was due to the vacancies of HR managers in all three study DHMTs. However, other HR functions, especially training and supervision, were with 7.1% and 6.6%, respectively, considerably higher. The higher proportions in these activities were explained by the two immunisation campaigns that were carried out in the districts during the study period, which required district health managers to train health personnel in the sub-districts before and supervise them during the campaigns. The vertical program also proved to be the main reason for the high variability in the proportions of time allocated to activities over the weeks, especially in training, supervision, monitoring, data management, and drugs and supply management. The study also found differences in time use between the managing cadres. While administrative managers allocated greater proportions of their time to attending meetings and receiving visitors, attending workshops, and administration, technical managers spent the highest proportion of their time to data management, and operational managers to financial management and drug and supply management.

The third study investigated the role of motivation and job satisfaction on retention of health workers in the PERFORM study districts. Health workers achieved an overall motivation mean score of 3.65 and an overall job satisfaction mean score of 3.15 out of a possible maximum of 5 for both scores. With regard to the motivation and job satisfaction sub-scores, satisfaction with remuneration, career development, management, and the work environment were lowest, all reaching mean scores below 3. Determinants such as general motivation, organisational commitment, and satisfaction with workload, in-service training, and supervision all received a neutral response in the mean. The only determinants which health workers regarded as positive in the mean were intrinsic job satisfaction, timeliness and attendance, and conscientiousness.

Overall, a high 69% of the respondents reported having turnover intentions. A multivariable logistic regression analysis showed that both motivation and job satisfaction were

significantly associated with turnover intention, indicating that health workers with higher levels of both were less likely to having intentions to leave their current health facilities. Further influential factors were working more than five years in the current health facility and the district of work, whereas the odds of working in the rural and deprived district Upper Manya Krobo were almost 6 times greater than the odds for working in the semi-urban and less disadvantaged district Akwapim North. A surprising finding was that neither age, profession, nor the type of health facility were significantly associated with turnover intention in the multivariable regression. Among the sub-scales significantly associated with turnover intention were organisational commitment, and satisfaction with management, career development, workload, tasks, and morale. It was found that such factors can be influenced by DHMTs in order to increase motivation and job satisfaction, which in turn will make health workers more likely to remain in their current positions.

7.2. Methodological issues: strengths and limitations

The studies of the present thesis were based on three main methods: individual in-depth interviews (IDIs), a longitudinal survey using an interview-administered tool, and a cross-sectional survey with interview-administered questionnaires. In the following section, the most important advantages and limitations of the employed methods as well as the generalizability of the obtained results will be discussed.

7.2.1. Individual in-depth interviews

The initial study used IDIs to study district health manager's perspectives on their efficiency. In-depth interviewing is a qualitative research technique that involves conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, program, or situation. The primary advantage of IDIs is that they provide a deeper understanding of phenomena than through other data collection methods, such as surveys. In addition, IDIs are usually conducted in a relaxed atmosphere in which information is collected and respondents may feel more comfortable having a conversation with a researcher as opposed to filling out a survey questionnaire (Boyce and Neale, 2006, Gill et al., 2008). Doing IDIs requires experience in interview techniques as well as a thorough understanding of the topic and the questions under research in order to being able to direct the interview and also to probe interviewees to elaborate on answers for more clarity or on interesting issues emerging from the interview previously not considered (Morris, 2015).

All interviews were conducted by the author of this thesis, who is a social anthropologist by training with previous experience in qualitative research in Eastern Africa. The study is likely to have benefitted from a relationship of trust that was established between respondents and the interviewer due to his involvement in other PERFORM activities, for which reason the interviewer and those studied had been knowing each other for several months before interviews were carried out. This is rather unusual for IDIs where respondents often meet the interviewer only once for the interview and then never again without knowing if the provided information will be kept confidential and deidentified (Morris, 2015). Because of the built-up relationship most respondents felt comfortable during the interviews and disclosed information also on more sensitive questions, which probably provided richer and more profound qualitative data than what would have been obtained without this relationship. The interviewer played a leading role in the study design, had developed the interview guideline, and was experienced in research on district health management practices and therefore, he was in a good position to direct the interview and identify interesting issues emerging from it. All interviews were conducted in English, a *lingua franca* in Ghana in which all respondents as well as the interviewer were fluent. Therefore, all study participants were perfectly able to engage in a discussion or to provide qualified responses to questions, for which reason it was not necessary to employ an interpreter or local interviewer. Using English as the language of communication also had the advantage that translations were not necessary in the whole research process, which may have caused a loss or altering of the meaning of what was said in the interviews.

A common limitation of IDIs is that they are prone to bias, especially with regard to interviewer bias and response bias (Boyce and Neale, 2006). Interviewer bias is caused when the interviewer intentionally or unintentionally influences the response of study participants thereby weakening the credibility of the data (Roller and Lavrakas, 2015). The main strategies used to reduce interviewer bias were formulating clear and concise questions in the interview guideline and remaining as neutral as possible in speaking, tone and body language during interviews. Recording all interviews also avoided the risk to rely on memory when transcripts were made after the interviews. Using only one interviewer for all the interviews also had the advantage that the interviewer impact was approximately the same in all interviews.

Response bias refers to untrue or partially true statements made by respondents and can take many manifestations such as consistency bias (trying to appear consistent in answers even if

following statements are untrue), error bias (statements are unintentionally untrue), sensitivity bias (reluctance to respond to sensitive questions and thus giving untrue answers), or social desirability bias (tendency to answer questions in a manner that will be viewed favourably by others) (Roller and Lavrakas, 2015). Conducting all interviews in the familiar environment of the respondents' own offices, ensuring anonymity, and establishing a trusting relationship were the main strategies to reduce response bias. However, it is also possible that the good relationship between the interviewer and the respondents has actually been a source of social desirability bias and thus response bias, because respondents could have masked certain aspects of their work behaviour in order to create a good impression with the interviewer. Another strategy used was probing in order to trigger clarifications on unclear responses, which is likely to also have contributed to reducing response bias, because interviewees were given the chance to reflect on what they said. However, response bias is difficult to control in IDIs and cannot be completely avoided (Ritchie and Lewis, 2003).

Another limitation inherent in IDIs and qualitative research in general is that generalisations about the results can usually not be made, which is owed to the typically small sample sizes as well as non-random sampling methods normally used to select study participants (Boyce and Neale, 2006). For the IDI study we succeeded to recruit 19 of the 21 district health managers working in the study districts during the study period and thus, the sample represented almost the total study population. For this reason, the perceptions about efficiency expressed by respondents are representative for district health managers in the study districts. Caution is required to generalise the results of this study to other districts in Ghana, because these may differ in important characteristics such as DHMT compositions, vacancies, and available resources. However, because the study districts were selected by PERFORM to represent a range of common characteristics of Ghanaian districts – such as location (rural, urban, mixed), wealth status (deprived, average, better off), and health system performance (poor, average, good) –, the districts are likely to not differ fundamentally from most other areas in Ghana and therefore, findings regarding DHMT efficiency may also be transferrable to such areas.

7.2.2. Longitudinal survey

The second study employed an observational longitudinal research design to determine district health managers' time use practices and time allocation. Longitudinal studies repeatedly sample a population, process, or system over time and consist of three main

characteristics, which are collecting data in two or more distinct time periods, using either panels (participants are the same) or cohorts (participants are comparable) in each data collection period, and comparing the collected data in each time period in the analysis (Stidham et al., 2014). The main strength of longitudinal studies is that they permit the direct measure of change in a variable from one period to another (Schmidt and Teti, 2006). Other strengths are that they decrease recall error by soliciting current responses at different points in time and enable the researcher to examine the influence of current events on the observed variables. Important disadvantages are the common difficulty to locate past participants in the case of panel studies, dropout of participants over time and bias resulting from participants' familiarity with the survey tool that may influence responses (Ruspini, 2000, Stidham et al., 2014).

At the beginning of the survey conducted for this thesis a panel was created into which all 21 district health managers working in the study districts were recruited and then followed for a period of three months. Daily time use was measured by means of a time recording tool that was specifically developed for the purpose of this study. This is considered a major strength, because the activities captured by the tool were carefully selected to represent all major activities usually carried out by district health managers in Ghana, with selections having been made after a two-week pilot that was conducted in all three study districts and with all types of district health managers. We were able to recruit three local field assistants for the administration of the tool. Two of these assistants had just completed their one-year national service in their respective study DHAs and, therefore, had first-hand experience of the functioning of a DHA as well as a good knowledge of the activities conducted by district health managers. The third field assistant was a former national service personnel of the Eastern RHA in Koforidua who had already worked as an assistant in another study carried out for this thesis, and thus had a good knowledge of the regional health system as well as a clear understanding of the aims of the thesis. Conducting this study at the workplace of the study participants had the advantage that the field assistants knew where or how to find them in order to carry out the interviews and consequently, in contrast to other panel studies, it was usually not a major challenge to locate or reach participants. In addition, we managed to keep all district health managers in the panel and did not have any dropouts during the whole study period.

We combined two different, but related methods to collect time use data from the managerial workforce, i.e. face-to-face interviews and telephone-interviews. This was necessary because of the high mobility of these cadres resulting in study participants frequently being absent from their offices, requiring field assistants to conduct the respective interviews by phone. All face-to-face interviews were conducted early in the morning when respondents were not yet busy, and therefore, such interviews were usually carried out in a relaxed atmosphere. District health managers who did not arrive in the office were usually on duty outside the DHA and, in such cases, normally too busy to do the interview in the morning. For this reason, field assistants were advised to arrange individual time slots with all study participants during which they could be reached by telephone, usually in the afternoon shortly before the end of the working day or in the evening. However, it frequently happened that district health managers were also busy during agreed times thus insisting on short interviews or refusing to conduct it, in which cases the interviews were not repeated and counted as non-response. Another shortfall of telephone interviews was the recurrent difficulty to understand respondents due to technical problems of network providers, which could have caused errors resulting from communication problems. The different circumstances under which data were collected thus might have caused inconsistencies in the resulting dataset. However, considering the thread missing data from frequent non-responses constitute to the validity of the findings in longitudinal studies (Jelicic et al., 2009), using two different methods for the data collection and thus reducing missing data to a minimum was regarded the better option.

The longitudinal study was potentially affected by the same forms of bias as discussed in the previous sub-section. However, interviewer bias is likely to have had a rather subordinate impact, because all study participants were familiar with the tool and the role of the interviewer was more to record activities and times than to ask questions. Regardless of this, interviewers were made aware of the risk of interviewer bias and trained how to avoid biased questions and behaviour. As the main purpose of the interviews was that respondents estimate the time spent on their work activities the previous day, recall bias and error bias were the greatest risks in this study. It was likely, therefore, that respondents frequently over- and underestimated their time use in the interviews, especially for minor activities (such as short phone calls, responding to an email, making a photocopy) that were randomly distributed over the day. In addition, minor activities usually cut into major activities (such as report writing, data analysis, training of staff), which made it difficult for respondents to correctly differentiate between these activities and estimate their time use separately. Social desirability

bias has probably affected statements concerning unproductive activities in a way that respondents underreported time use in such activities. Although bias has been addressed by probing, given these limitations it is unlikely that this strategy eliminated response bias during daily data collection. However, the high risk of response bias was one of the major reasons why we had chosen a longitudinal study design (being able to measure change in time use was the other), because doing daily repeated measurements is an effective method to compensate recall errors (Stidham et al., 2014).

Because this study was conducted with all district health managers in the study districts it is representative for DHMT time use practices in these districts. Although a sample size of 21 individuals is too small to draw *quantitative* generalisations at national level, it is safe to assume that time use practices in other districts in Ghana resemble those in the study districts, because these are likely to not differ fundamentally from other districts – with the exception of major cities such as Accra, Kumasi, and Tamale –, and because responsibilities of DHMTs are the same in all districts. Moreover, two national immunisation campaigns where carried out during the study period, in which all districts in Ghana participated, and, therefore, it is expected that DHMT time use was approximately similar in other districts during these campaigns.

7.2.3. Cross-sectional study

The third study employed a cross-sectional design to determine the effects of health worker motivation and job satisfaction on turnover intention. Cross-sectional studies are observational in nature and aim to obtain a representative sample by taking a cross section of the population. In contrast to longitudinal studies all measurements for a sample member are obtained at a single point in time, although recruitments usually take place across a longer time period (Sedgwick, 2014). A cross-sectional study is particularly suitable for estimating the prevalence of a behaviour or disease in a population and can be highly efficient for determining the association between two or more variables (Bourque, 2004). Other advantages are that they are relatively inexpensive, quick and easy to perform, useful for generating and clarifying hypothesis, and that they may also form a suitable basis for future follow-up studies. An important disadvantage is that causation can generally not be studied, because collecting data on each study participant only once makes it impossible to infer temporal associations between a risk factor and the outcome of interest. Cross-sectional studies are also prone to non-response bias if participants who consent to take part in the

study differ from those who do not, resulting in a sample that is not representative of the population (Schmidt and Teti, 2006, Sedgwick, 2014).

In this study representativeness was established by using a systematic sampling strategy. Systematic sampling is a probability sampling technique, in which sample members from a larger population are selected according to a random starting point and a fixed, periodical interval so that each sampling unit has a chance of being selected in the sample (Friis and Sellers, 2014). Sampling was based on a list containing all clinical health staff working in the study districts during data collection. The list was reordered alphabetically by health facility, disregarding the districts in which these were located, in order to ensure that all facilities would be included in the sampling process. As the required sample size was estimated to be around the half of the entire clinical health workforce population, the interval was set as "two" so that every second health worker was selected. Whether to start at the first or second entry was determined with a random number generator. Using a systematic sampling strategy was likely to have effectively eliminated sampling bias, a type of selection bias known to undermine the external validity of a study (Schmidt and Teti, 2006). However, our decision to not follow up health workers who were absent from their workplaces during data collection may have been a source of attrition bias (another type of selection bias) through the non-response of health workers that were potentially less motivated and less satisfied than the included individuals. This decision had yet been necessitated by the limited available financial, time and human resources (in terms of interviewers), which did not allow following up health workers who had been on annual leave, study leave, maternity leave, or were otherwise absent from their workplace during data collection. Although it is conceivable that both demotivation and job dissatisfaction were more prevalent in health workers who were absent from their workplace without an excuse, there is no reason to believe that this was true for health workers absent with valid excuse, which represented the great majority of those absent. Therefore, it is unlikely that attrition bias and non-response bias affected the representativeness of the study.

Data was collected by means of a structured questionnaire, which was administered by face-to-face interviews. The parts on motivation and job satisfaction were adapted from the instruments developed by Mbindyo et al. (2009) and Rouleau et al. (2012), respectively, for the use in Ghana and for all types of clinical health workers. These instruments were selected, because they were validated and successfully used in other sub-Saharan African countries.

We validated the questionnaire for the use in Ghana by assessing total-item correlation, convergence validity, face validity, discriminant validity, and reliability of the sub-scales, which proved to be acceptable for reliability and good for all other criteria. Three interviewers administered the questionnaire. One was the author of this thesis who also acted as a field supervisor. The other two were recruited from the Eastern RHA, where they had just completed their national service in the statistics department. Because they did not have previous interviewing experience we combined piloting the questionnaire in the Eastern Regional Hospital in Koforidua with interview training. Most respondents were fluent in English and thus understood the questions adequately. The few respondents who had difficulties to understand the questions were interviewed by one of the two local interviewers, who read the questions in English and then clarified in Twi, a *lingua franca* in Ghana. This might have caused inconsistencies in the data, because translations were made ad hoc, which could have resulted in a loss or altering of the meaning of the questions. However, because these respondents represented only a minimal share of the total sample population, it is unlikely that such errors negatively affected the results.

Another limitation was the use of turnover intention as a proxy of turnover. This was, however, necessary, because of the cross-sectional study design with only one measurement in time per study participant. The study was initially designed as a prospective nested matched case-control study. It was planned to obtain a cross-section of the study population concerning their motivation and job satisfaction at baseline. The study participants of the cross-section would have constituted a cohort, which we planned to follow up in order to conduct exit interviews with all individuals that voluntarily resigned during 12 months asking them about the reasons of their turnover decision, and then match each attrition case with two non-cases. However, after we had conducted a pre-study to determine the voluntary attrition rate in the study districts, we found that only around five individuals per year per district usually leave voluntarily, which we considered too low to draw valid quantitative conclusions about attrition. In addition, after we had obtained the list of health workers working in the study districts, we noted that the number of individuals concerning the professions doctors, pharmacists, and allied health workers was small. This was considered problematic, because it would have been difficult to find suitable matches with regard to factors such as age and length of stay for these professions in the study districts. For these reasons we decided to only carry out the cross-sectional part of the study and to use turnover intention as a proxy of turnover, although turnover intention is likely to be a rather weak proxy of turnover, as

studies have shown that intention variables are often not strongly correlated with actual behaviour (Rittenhouse et al., 2004).

Also the cross-sectional study was potentially affected by interviewer bias and response bias. Interviewer bias might have occurred, because of the lacking interviewing experience of the two local interviewers, although we reduced this risk by training and regular supervision by the more experienced third interviewer. The main strategies used to reduce response bias was conducting all interviews in quiet office rooms, alone with the participants, and ensuring confidentiality. However, it is unlikely that response bias was completely eliminated. Response bias may have occurred in some variables especially in the form of social desirability bias, for instance in "timeliness and attendance" and "conscientiousness" to which respondents rated themselves generally positive.

Due to the dichotomous character of the outcome variable, the effects of job satisfaction and motivation were explored through logistic regression analysis. We envisaged exploratory models with a primary focus on the sub-scales and overall scores of motivation and job satisfaction. Turnover intention was the dependent variable and the scales the primary independent variables, which were controlled by demographic as well as work-related variables. It was a limitation in the analysis that the combined effect of all sub-scales on turnover intention could not be assessed in a multivariable model. This was due to the comparable low sample size of 228 health workers (originally 256, but the focus on voluntary turnover reduced the sample size to 228), with 157 cases and 71 controls. The "rule of thumb" that the number of independent variables in a model should not exceed 10 times less the smaller group in order to prevent overfitting of the model thus limited the selection of covariates, confounders, and effect modifiers (Hosmer et al., 2013). In the analysis, the smaller group was the control group (who did not have turnover intentions), which meant that not more than seven independent variables could be included in the models. As a result, it was necessary to fit multivariable models that assessed the effects of the sub-scales separately.

7.3. Contributions to the understanding of the role of management actions on turnover

By applying the motivation model of Franco et al. (2002), the effects of motivational determinants on the motivational outcomes job satisfaction and turnover intention are discussed in this section as well as district health managerial problems that are likely to have contributed to these outcomes. While the first sub-section refers to the effects of individual

determinants on turnover intention, the second and third sub-sections discuss the effects of organisational determinants on job satisfaction and turnover intention, respectively.

7.3.1. Individual determinants of motivation and their effects on turnover intention

A range of socio-demographic and work related individual determinants was investigated for their possible effects on turnover intention. Among the determinants significantly associated with turnover intention in a crude analysis were age, type of facility, and district. We found negative associations with turnover intentions for health workers older than 39 years of age, meaning that this age-group was less likely to have these intentions as compared to their colleagues at baseline who were younger than 30 years of age. We argued that it was likely that many older health workers, although possibly not originating from the area of their current workplace, had settled and were thus rooted around the workplace through social and family relations and, in consequence, had a strong rationale to keep their workplace. This assumption was supported by the finding that the odds of having turnover intention for health workers working longer than five years in their current health facility were eight times lower as compared to health workers working less than one year in their current facility. In contrast, younger health workers usually do not have such relations around the workplace and are thus often posted to an area foreign to them, frequently hours away from their hometowns, which was identified as a reason for having turnover intentions due to the significant and positive relationship between having this intention and living away from one's family.

The odds of having turnover intentions were around twice as high for health workers working in a health centre or CHPS clinic as compared to their colleagues in the district hospitals. This is likely to be the case due to the often difficult living and working conditions in these environments, where health workers are frequently isolated, face poor housing, water shortages and problems with electricity supply, and often lack basic equipment and supplies to carry out their work. These problems are exacerbated in Upper Manya Krobo, the highly deprived district in our study. Except of the district capital Asesewa and few health facilities located at the main road connecting the town to the Eastern Region's capital Koforidua, the district faces severe problems with regard to electricity, water and connectivity to communication networks. Many health centres and CHPS clinics are not connected to Ghana's electricity grid and frequently do not have tap water or a borehole in the immediate vicinity. Although some facilities are equipped with a rain-fed water tank, these tanks run out of water for several months during dry seasons. Some areas are also not connected to mobile

networks, preventing health workers posted in such areas to stay in contact with family and friends. Considering this background, it was not surprising to find that the odds for having turnover intention were more than five times as high for health workers working in Upper Manya Krobo as compared to those working in Akwapim North, where living conditions are usually considerably better.

It was, however, surprising that we did not find statistical evidence for differences in intention to leave among the surveyed professions. We identified only two other studies that assessed the association between turnover intention and different health cadres through regression analysis, but also these studies did not find evidence for differences in this association (Blaauw et al., 2013, Fogarty et al., 2014). A few studies have shown nurses to be significantly more satisfied with their jobs than doctors (Lambrou et al., 2010, Jönsson, 2012, Sehlen et al., 2009). Given the relationship between job satisfaction and turnover this finding may indicate that doctors are more difficult to retain at their current workplace than nurses. However, this remains an assumption until more conclusive evidence will be established in future research.

7.3.2. District health management and health worker job satisfaction

Table 7.1 shows the results of an analysis of the effects of selected organisational determinants on the two motivational outcomes job satisfaction and turnover intention as determined in Paper 3 of this thesis. In this sub-section the different determinants are contrasted with key district health managerial problems we identified in all three papers that are likely to have contributed to these outcomes.

The study on time use practices showed that district health managers spent only a fraction of their time in HRM activities. Although the analysis suggests that this finding is likely to contribute to several of the low motivational outcomes, there appears to be a direct link to dissatisfaction with career development. Promotion is the only means for health workers to get elevated within their professional ranks and an accompanying increase in salary (Ghana Health Service, 2014b), and thus, it is regarded as a major source of motivation (Mathauer and Imhoff, 2006) and a key reason for health worker turnover intention (Yang et al., 2015), which was also confirmed in this thesis. In its policy on promotion, the GHS has established a number of criteria for health personnel to become eligible for promotion, most importantly the level of performance, the number of in-service trainings relevant to the profession, the

Table 7.1. The effects of motivational determinants on health worker job satisfaction and turnover intention

Selected motivational determinants	*Key problems*	*Overall satisfaction*	*Effects on turnover intention*
Salary conditions	• Low DHMT decision space concerning salary (Paper 1) • No funds available for financial incentives (Paper 1)	Low	No evidence found
Career development	• Low DHMT decision space concerning promotions (Papers 1 and 3) • Shortage of HR officers (Papers 1 and 2) • Delays in handling promotions due to prioritisation of other, non HR related activities (Paper 1) • Lack of competence about how to handle promotions (Paper 1)	Low	Average
Management	• Lack of and control over funds (Paper 1) • Shortages of key managerial staff such as HR officers, health services administrators, and supply officers (Paper 1 and 2) • Low levels of time use in several managerial areas such as HR, supply, and maintenance (Paper 2) • Lack of competence in drug and supply management (Paper 1) • Low DHMT decision space concerning promotions, supply and maintenance (Paper 1) • Time constraints of DHMT members due to high workload (Paper 1) • Absences of DHMT due to high frequencies of workshops (Paper 1)	Low	Average
Work environment	• Lack of funds for maintenance (Paper 1) • Shortage of health services administrators (Papers 1 and 2) • Low levels of time use for maintenance (Paper 2) • Lack of competence in drug and supply management (Paper 1) • Low DHMT decision space concerning supply and maintenance (Paper 1)	Low	No evidence found

Selected motivational determinants	*Key problems*	*Overall satisfaction*	*Effects on turnover intention*
Workload	• Shortages of mid- and high-level health workers (Paper 3) • Maldistribution of health staff across health facilities.	Average	Average
Supervision	• Shortage of funds for supervisory activities (Paper 1) • Majority of supervisory activities are conducted in the frame of vertical programs (Paper 2) • Regular supportive supervision is rarely conducted and usually not used to identify training needs (Paper 1 and 2)	Average	No evidence found
In-service training	• Shortage of funds for in-service training activities (Paper 1) • Majority of training activities are not focused on structural improvements, but are rather biased towards achievement of programme specific objectives (Paper 2)	Average	No evidence found
Work tasks	• Shortage of mid- and high-level cadres may overburden low-level health workers with tasks for which they are not trained for	Average	Strong
Organisational commitment	• Dissatisfaction of health workers with several motivational determinants, especially with remuneration and career development (Paper 3)	Average	Strong
Intrinsic job satisfaction	• Dissatisfaction of health workers with several extrinsic factors. However, intrinsic factors such as social recognition may outweigh extrinsic dissatisfaction (Paper 3)	High	Strong

number of years served in the present grade, and good conduct. These criteria, however, are often unclear and open to interpretation, as the GHS does not define the level of performance that is considered satisfactory, nor which type of in-service training must be completed that is accepted as relevant for the profession, or what is meant by good conduct. In addition, the number of years one must have served in order to become eligible for promotion varies according to profession and educational level (Ghana Health Service, 2014b). Given these ambiguities surrounding promotions, it is, therefore, a responsibility of HR managers to clarify those issues and to guide and counsel health staff on their career opportunities and development. In addition, HR managers are responsible for contributing to the identification of their health staff's training needs and also to the development, implementation and evaluation of training programs that facilitate their career progress (Ghana Health Service, 2005a). However, the low percentage district health managers allocate to HRM does not suggest that such responsibilities are met to a satisfactory degree.

A major underlying reason for the low levels of time use in HRM is the high level of vacancies concerning the position of the HR manager in all three study DHAs. Therefore, HR functions such as maintaining the district's HR database, organising in- and out-transfers and promotions, and also counselling of sub-district health staff are carried out by DHMT members without prior knowledge and skills in HRM. For this reason, the different processes concerning HRM are not well known in the DHAs, which was demonstrated by DHMT members expressing difficulties to carry out these tasks according to the regulations of the GHS. In addition, it was shown that DHMT members are prioritising their core management duties and are thus neglecting tasks they carry out in addition to these duties, including HRM activities, with the result that the completion of such activities possibly delay considerably. It is likely, therefore, that delays resulting from errors and neglect add to the negative motivational outcomes, especially concerning dissatisfaction with career development and management.

However, dissatisfaction with management is likely not a result of HRM problems alone, but also of those concerning other DHMT activities such as the management of buildings and equipment as well as drugs and supplies. It was shown that district health managers spent only a fraction of their time for these activities, which is due partly to the lack of health services administrators in the study DHAs, who are mainly responsible for planning, managing and maintaining the health infrastructure and physical assets in the sub-districts (Ghana Health

Service, 2005a). Our findings revealed that management activities in these areas mainly relate to the maintenance of computer equipment, but that the management of buildings and medical equipment is virtually not practiced. This is likely to be one of the reasons why several health facilities in the sub-districts are in a very bad condition, for which health workers may blame the DHAs, as is reflected in the low motivational outcome concerning satisfaction with management.

Although supply officers were working in two of the three study DHAs, this cadre was only permanently employed in Akwapim North district. Upper Manya Krobo employed a supply officer on contractual basis mainly during immunisation campaigns and Kwahu West had none. In the absence of supply officers their responsibilities are distributed among other DHMT members that do not have prior knowledge or training in medicine supply management activities such as forecasting, quantification, and procurement. Our results showed that other DHMT cadres allocated only a fraction of their time to drug and supply management activities ranging between 0.4% and 4.1%. In addition, the finding that DHMT members prioritise their core duties by at the same time neglecting additional responsibilities does also relate to these management activities. However, district health managers are well aware that stock-outs of essential drugs in the health facilities may severely affect population health outcomes, and, therefore, they consider the management of drugs and supplies as of higher importance as compared to other management responsibilities they carry out in the absence of the respective DHMT personnel. Nonetheless, such issues are likely to contribute to the low levels of satisfaction with the management among health staff, but also to other satisfaction domains such as work environment.

Financial shortages in the DHAs are a major underlying reason for several of the low motivational outcomes, as they lead to the inability to provide financial incentives to health staff, do regular maintenance of buildings and equipment, and to equip health facilities with all necessary basic supplies. Financial incentives are considered essential for the motivation of health workers and a major strategy to improve health worker attraction and retention in rural areas (Willis-Shattuck et al., 2008, Barnighausen and Bloom, 2009, Dolea et al., 2010, Bertone and Witter, 2015). Although major financial incentives such as allowances for rural practice and additional duty hours allowance depend on policy implementation and from funding at national level, less expensive incentives such as housing, lunch and transportation allowances can be implemented at district level (Agyepong et al., 2012, Liu et al., 2015).

However, none of the study districts had implemented monetary incentives due to financial constraints. Coupled with financial shortages for maintaining the districts' health infrastructure and physical assets, the lack of financial incentives are thus likely to contribute substantially to the low motivational outcomes in the job satisfaction domains remuneration, work environment, and management.

In accordance with other studies from Ghana (Asante et al., 2006, Abekah-Nkrumah et al., 2009), financial constraints were identified as a reason for inefficient district health management in this thesis, as they disrupt the implementation of planned DHMT activities such as regular supportive supervision, training, and monitoring. However, the two studies conducted on district health management actions produced inconsistent results. While district health managers stated in the qualitative study on DHMT efficiency that supervision and monitoring in sub-district health facilities are rarely conducted due particularly to the lack of financial resources for fuel and the maintenance of vehicles, the DHMT time use study found that managers actually allocated 6.6% of their time to supervisory activities and even 9.8% for monitoring. This can be explained with the two immunisation campaigns that coincided with the data collection period of the time use study. Because financial constraints at district level do not relate to donor funded vertical programs, financial resources for the training of staff, and fuel for supervision and monitoring are available to carry out these campaigns, which are reflected in higher time allocations for these activities. Although district health managers indicated that some routine supportive supervision and monitoring activities are conducted when visiting health facilities in the frame of vertical programs – a finding which was also confirmed by the PERFORM project (Prytherch et al., 2015) –, they also stressed that these activities are rarely performed outside campaigns. However, the average levels of job satisfaction with in-service training and supervision expressed by health workers is likely to be a product of the higher percentages of time district health managers allocate to these activities when vertical programs are carried out.

Health workers in the study districts achieved average levels of job satisfaction with workload. This finding is somewhat surprising, taking into account the results of a range of research studies conducted in sub-Saharan Africa that HRH shortages especially in rural areas lead to highly increased workloads, low motivation and job satisfaction, and increased turnover (see, for instance, McQuide et al., 2013, Ojakaa et al., 2014, Bradley et al., 2015). From a management perspective this outcome can be possibly explained by improved HRH

management practices concerning the distribution of health workers at sub-district level. Although a responsibility of HRH officers, which were not available in the study DHAs, the distribution and re-distribution of health workers are regularly decided collaboratively in DHMT meetings on grounds of staffing levels, number of patients per month, and length of service of individual health workers in their current health facilities. This management practice may have led to a greater equity in health worker distribution across sub-district health facilities resulting in lower workloads for those facilities that usually have high patient loadings. In addition, Ghana's strategy to substitute vacancies of high- and mid-level cadres such as doctors, nurses, and midwives with lower-level cadres, especially community health nurses (Nyonator et al., 2005, Binka et al., 2007), might also play a role that workloads are not unbearably high. This strategy is most visible in Upper Manya Krobo, where more than 50% of the health workforce at sub-district level is composed of community health nurses due to the district's difficulty to attract highly qualified health professionals. Although not quantitatively assessed in this thesis, it was also observed during data collection that especially the CHPS clinics often did not have high patient loadings so that workloads in such facilities appeared to be manageable.

Intrinsic job satisfaction was the only job satisfaction domain in which health workers achieved high levels of satisfaction. Intrinsic job satisfaction derives from job characteristics related to fulfilment and self-satisfaction – the "motivation factors" in Herzberg's (1966) motivation-hygiene theory – such as recognition, the work itself, responsibilities, and achievement, but also motives such as the desire to help the poor, or to care for sick people (Huang and Van de Vliert, 2003). According to Franco et al. (2002), intrinsic job satisfaction also derives from self-esteem and self-efficacy, resulting from health workers' good evaluation of own competencies as well as confidence in the ability to accomplish specific work tasks. Therefore, managers can influence intrinsic job satisfaction, for instance by providing regular supportive supervision and in-service training thereby improving the skills and competencies of health workers and their confidence in performing work tasks, but also through task-shifting and by assigning more responsibilities to health workers. However, the high level of intrinsic job satisfaction achieved by health workers cannot be explained by district health management actions alone, because only median levels of job satisfaction concerning work tasks, supervision, and in-service training were measured. Therefore, health workers in the study districts seem to mainly achieve intrinsic job satisfaction from factors not

considered in this thesis, such as social recognition for working for the sick or recognition of achievement by immediate supervisors and colleagues in their health facilities.

7.3.3. Can district health management actions improve retention and attrition of health workers?

In congruence with the motivation model of Franco et al. (2002), the results presented in this thesis confirm the relationship between motivational determinants, job satisfaction and turnover intention, which, if not addressed, are known to lead to major retention problems (Dolea and Adams, 2005). However, not all of the assessed individual determinants and job satisfaction domains had significant effects on turnover intention. Among the individual determinants significantly associated with turnover intention were age, type of facility, and district and among those related to job satisfaction were career development, management, workload, and work tasks as well as organisational commitment and intrinsic job satisfaction. No evidence was found that profession, salary conditions, work environment, in-service training and supervision have significant effects on turnover intention.

We revealed a high frequency of turnover intention (69%) among health workers in the study districts, representing more than two-thirds of the total health workforce in these districts. Although we do not expect that all health workers that expressed the intention to leave their current health facility will actually leave their workplace and, therefore, we regard turnover intention more as an expression of low motivation and job dissatisfaction rather than a reliable predictor of attrition, longitudinal studies have provided evidence for a clear relationship between turnover intention and actual turnover (Rittenhouse et al., 2004, Rouleau et al., 2012). The results discussed in the previous sub-section suggest that district health management actions can influence health worker job satisfaction and thus, improved management practices are also likely to reduce turnover intention. Managers aiming for reducing attrition and improving retention in their districts are thus advised to especially focus on those domains that have significant effects on turnover intention.

However, in a decentralised health system improving management practices does also depend on the decision space district health managers have in such a system (Bossert and Beauvais, 2002). PERFORM researchers have analysed the decision space of district health managers in Ghana by asking them about their perceptions and experience of autonomy in HRM (Prytherch et al., 2015). The results of this analysis are presented in Table 7.2. The reported experience mirrors the literature and policy analysis concerning health sector decentralisation

and decision space presented in Chapter 2.3. DHMTs in Ghana reported to have no authority to pay staff salaries, but that they did have full or partial authority to hire additional staff on contract and to pay staff allowances. Those interviewed from all three districts confirmed that higher grade staff were recruited at national level, but that once such staff were allocated to their district they were responsible for their assignment and deployment. In addition to recruitment, DHMTs reported to have little authority concerning promotion, partial authority related to training and task shifting, and full authority concerning supervision. In many other areas of responsibility, such as allocating expenditure from national sources, purchasing drugs, supplies and equipment, and maintaining buildings and vehicles, DHMTs experienced rather less autonomy (Prytherch et al., 2015).

Table 7.2. Selected functions of DHMT decision space in Ghana, as reported by district health managers in the study districts

Selected function	*Decision space*
Finance	
Source of revenue	Narrow
Allocation of expenditure	Moderate
Allocation of expenditure from locally generated income (eg. cost sharing, health insurance, etc)	Wide
Planning and implementation	
Identification of local health needs and priorities	Moderate
Community participation in planning	Moderate
Partners involvement	Moderate
Service delivery	
Supply/availability of drugs	Narrow
Human Resources	
Recruitment	Narrow
Salaries	Narrow
Promotions	Narrow
Training of staff	Moderate
Supervision	Wide
Task shifting	Moderate

Adapted from Prytherch et al. (2015)

Despite the narrow decision space district health managers have to carry out their duties in several key management areas, results from the PERFORM project strongly suggest that district health management strengthening is possible also under these conditions. During the course of the project, district health managers learnt how to conduct root-cause analyses and to apply these to develop solutions for recurrent problems. With the support from PERFORM, the managers in the three study districts in Ghana identified health workforce shortages, a

lack of supervision support and worker capacity, poor motivation of health staff, and challenges in the drug and supply system as root causes for key problems in service delivery, especially with regard to immunisation and antenatal care (ANC). In order to address these problems DHMTs implemented several HR/HS bundles that fell within their authority, such as intensified monitoring and supportive supervision, better use of workplans, capacity building of sub-district health staff, regular open appraisal, and better collaboration with stakeholders in the districts. Because PERFORM did not provide the DHMTs with any additional funds, they were encouraged to take better advantage of local resources, and advised to prioritise strategies and activities carefully so to adapt and respond to the challenge of late disbursement. The PERFORM researchers observed that the knowledge of district health managers in problem solving had deepened over time as well as their ability to optimise their workability in accordance with available resources. In addition, district health managers became to realise that a number of activities addressing the identified root problems were not primarily dependent on financial resources, but rather on "how to do" knowledge. As a result, district health managers reported to feel more capacitated and empowered to assess and adjust routine strategies so as to improve their effectiveness. At the end of the project it was found that the improved management practices and skills had a positive impact on service delivery, as was demonstrated by sharply increased immunisation rates, decreased immunisation drop-out rates as well as an increase in ANC coverage (Prytherch et al., 2015).

Given the relationship between improvements in health service delivery and motivation (Franco et al., 2002, Leshabari et al., 2008), it was suggested that this outcome was likely to have contributed positively to the job satisfaction of health workers in the study districts. In addition, the implementation of the PERFORM intervention led to improved supportive supervision, more focused in-service training, delegation of tasks to lower-level cadres, and possibly improved team building among health staff (Prytherch et al., 2015). Although this thesis did not find evidence for several of these district health management actions to have significant effects on turnover intention, they are likely to have indirectly contributed to better health worker motivation and retention. For instance, focused in-service training does not only improve staff competence, but it enables health workers to achieve personal goals of career advancement, increases morale and organisational commitment through an improved sense of belonging, and may contribute to reduce workload (Dieleman et al., 2006, Mathauer and Imhoff, 2006, Patterson et al., 2010, World Health Organization, 2010). Studies conducted in rural and remote areas have also shown that access to in-service training

contributes to confidence in practicing in such areas, strongly alleviates professional isolation, and improves retention (Moran et al., 2014). Another example is supportive supervision, which is regarded as a key element of HRM for improving motivation, job satisfaction, performance and retention in rural areas (Rowe et al., 2005, Mathauer and Imhoff, 2006, World Health Organization, 2006). In the light of the positive experience of the district health management strengthening intervention, the PERFORM findings thus suggest that good district health management practices can indeed positively influence attrition and retention of health workers.

7.4. Relevance for HRH policy in Ghana

7.4.1. Decentralisation policy and HRM

As illustrated in Chapter 2.3, Ghana has undertaken major decentralisation efforts since the 1980s onwards. However, at the district level Ghana still practices a deconcentrated health system, which is considered the weakest form of decentralisation, as it only transfers responsibilities from the central level to the local level. The authority for decision-making, finance, and management in a deconcentrated system thus mostly remains at the central level (Bossert and Beauvais, 2002). The results of this thesis have shown that district health managers in Ghana have only very limited authority especially in the area of HRM. Health workers are mostly centrally employed civil servants and thus, salaries are determined and paid at central level. Because health workers are largely under central control, district health managers do not have the authority to hire, fire, and discipline their staff. Moreover, as DHMTs generate only very limited financial resources and because the greatest share of health expenditure is determined and executed at national level, district health managers do not have the means to allocate funds for financial incentives in order to attract and retain highly skilled health workers. In addition, district health managers only have little authority concerning staff promotion, which was shown to be a very sensitive area that contributes considerably to health worker job dissatisfaction as well as turnover intention. District health managers also have limited financial resources as well as autonomy to plan and manage their own capacity building, and thus most training takes place through centrally managed donor funded programmes that do not focus on structural improvement and career development, but are rather biased towards achievement of programme specific objectives.

Under optimal conditions, decentralised HRM means that the district level has the authority to effectively deliver its functional responsibilities, and to do so it must be able to hold staff to

account, allocate staff where need is greatest, manage its financial resources, and attract and retain skilled staff (Steffensen and Tidemand, 2004). In order to improve retention and attrition of health workers, the MoH should thus pursue a more devolved system at district level and transfer higher levels of authority to the DHAs especially in the area of HRM. This could be achieved, for instance, by introducing a decentralised payroll system, substantially increasing the allocation of central government financial resources to the DHAs and also the amount of discretion with which DHMTs can use these resources, and by decentralising recruitment, training and promotion to adequately equip DHAs with the means to attract and retain skilled health workers. However, the possibility of negative effects of such measures must also be taken into account, such as bias in selection of staff according to local preferences without due consideration of professional competencies, financial mismanagement, and limitations on career prospects for the higher level cadres. On the other hand, such weaknesses are also found in central government management systems and can possibly be prevented by capacity building in HRM and appropriate regulations as well as incentives for proper HRM (Steffensen and Tidemand, 2004).

7.4.2. HRH policy

The MoH's most recent HRH policy and strategy document still dates from 2007 and covers the years from 2007 to 2011 (Ministry of Health, 2007). MoH officials claim since years that the ministry works on an updated version, but it has not yet materialised. Although the MoH states to have recognised HRH as essential for health sector development, this does not suggest that it is a priority area on the government's development agenda.

Nonetheless, Ghana has developed and implemented a number of health-related policies and provisions concerning retention of HRH, some of which will need substantial revision for the years to come. This thesis has shown that the shortage of several managerial staff, especially health services administrators, HR officers and supply officers, is a key problem for ineffective district health management practices that contribute substantially to high levels of health worker dissatisfaction and turnover intention. Even though the MoH emphasises the need to strengthen DHMTs and build capacity for HR managers and officers for more effective management, in contrast to the clinical workforce the ministry has not recognised shortages of non-clinical staff as being a problem in their HRH policy. Moreover, in order to reduce the increasing wage bill the GoG has introduced an embargo of employment for all non-clinical staff in 2010 (Abbey, 2010). This embargo is still in place also in 2015, which

makes it difficult to even replace staff that have retired, resigned or deceased, but exceptions are reported (Osam, 2014, Siewobr, 2015). The embargo constitutes a main reason for the current shortage of essential DHMT staff, and, until it is lifted, the situation is expected to become worse, making it more and more difficult for the DHAs to fill their vacancies. The MoH as well as the GoG should thus review their policy concerning the non-clinical staff and at least facilitate the recruitment of those categories of staff that have high levels of vacancies.

Even though health workers in Ghana are considered to belong to the best paid in Western Africa (Global Health Workforce Alliance, 2008a), salary levels are still regarded as being too low, as was reflected by high levels of dissatisfaction with remuneration among health workers. In addition, the majority of health workers reported themselves unsatisfied with the benefits they receive, suggesting the need of reforming and better implementing monetary and non-monetary incentive schemes for employees in the GHS, which currently mainly consist in the provision of hire purchase cars and housing schemes, but do not include, for instance, rural hardship allowances aiming at retaining health staffs in rural areas (Ministry of Health, 2007). The MoH should thus introduce rural monetary incentives in order to improve job satisfaction and turnover intention, and ultimately retention of health workers in rural areas. However, rural monetary incentives should not be implemented without prior investigation into expectable costs in order to avoid cost explosions, such as experienced with the now abolished additional duty hour allowance (ADHA) scheme (Agyepong et al., 2012). To determine the appropriate rural incentive mix, demands and expectations of health workers should also be considered, which would require additional investigations. In order to avoid disputes of what rural areas are, a clear and comprehendible definition of “rural” should be developed and strictly adhered to.

In collaboration with other sector ministries, non-monetary incentives should also be implemented, especially concerning the provision of a good and safe working environment and improved living conditions in rural health facilities to improve attraction and retention of health workers in rural areas. Such incentives could include the availability of essential technical and medical equipment, better road accessibility, communication, electricity, running water, Internet, schools for children, and the availability of appropriate accommodation. Although Ghana’s HRH policy stipulated to reform the implemented support scheme to attract and retain staff in rural and deprived areas by introducing a comprehensive incentive package including monetary and non-monetary incentives this package was not implemented until today (Ministry of Health, 2007).

Our findings suggest that the majority of in-service training activities in Ghana are not conducted in response to identified knowledge gaps of health workers and as career development measures, but rather to achieve programme specific objectives. Although both supportive supervision and job appraisals are conducted in Ghana, these do not seem to lead to the development of in-service training programs specifically designed to improve the skills, knowledge, and capability of health workers. This should be changed, and by using the information generated by supervision activities and job appraisals, tasks and responsibilities should be adjusted through targeted in-service training so that the capabilities of all employees are being used most effectively. Studies have shown that such measures lead to increased staff outcomes in terms of self-reported knowledge, confidence in practice and skills (Moran et al., 2014) and, therefore, they are likely to also contribute to improved job satisfaction and retention.

This thesis has identified high levels of dissatisfaction with career development among the health workforce in the study districts, which was also strongly associated with turnover intention. In addition to problems concerning HRM as discussed in the previous section, this, according to Agyepong et al. (2004), could also be related to a more difficult access to further education, structured in-service training and promotions in rural areas in Ghana leading to delayed promotions in these areas. Dissatisfaction with career development may especially arise if rural health workers observe less experienced colleagues being promoted, because they are posted in facilities closer to the centre and, therefore, are more visible or better able to agitate for their promotions than health workers posted at the periphery. In a qualitative study conducted by Snow et al. (2011) in Ghana, health workers also mentioned disadvantages in career development as a major disincentive and even expressed fears of career ‘deaths’ when asked whether they would accept postings to rural areas. In 2014, the GHS (2014b) has updated its policy on promotion in which the eligibility criteria as well as the procedures for promotions for all categories of health worker are considered, which may help to improve these uncertainties surrounding promotions. However, given the recency of the policy document, this thesis did not assess whether it has a positive effect on promotion practices and if it leads to improved job satisfaction and turnover intention of health workers.

7.5. Conclusion

In congruence with the motivation framework of Franco et al., the results presented in this thesis confirm the relationship between motivational determinants, job satisfaction and turnover. The results also suggest that district health management actions can influence health worker motivation. However, financial and human resource shortages, factors that were found to contribute substantially to low health worker motivational outcomes, are both problems, which must be solved at national level. Nonetheless, the PERFORM management intervention program has shown that improved planning, team-building, and supervision as well as more focused in-service training and delegation of tasks to lower-level cadres are all factors that can be achieved also without additional resources. These findings suggest that district health managers can improve motivation also under difficult conditions in resource-constraint health systems, thereby improving health worker retention and attrition outcomes.

8

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9

Appendix

9.1. Interview guideline for the DHMT efficiency study

Usual work activities

1. Please describe your main work tasks in your job as a _____ (state job title)?
2. Which of these work tasks, in your experience, are most time consuming?
3. Are you aware of your job description as a _____ (state job title)? If so, please shortly describe the written tasks.
4. What are the main work tasks you usually perform, which are not listed in your job description?

Causes of inefficient management practices and coping strategies

5. To which activities you think you allocate too much time and to which you consider not devoting enough time?
6. How do you usually decide which of your activities are more important than others?
7. When you realise that you are not able to complete all activities during the week as intended, to which type of your activities you usually give priority and which tend not to be implemented?
8. What are usual main constraints when you realise that you cannot complete your activities during the week as intended?
9. What is about the workshops you have to attend, how do they usually interact with your weekly schedules?
10. Could you please estimate how much of your activities during a usual workday are planned and how much unplanned?
11. What are common unplanned activities?
12. How do these unplanned activities interact with your normal work schedule?

Possible ways to improve efficiency

13. When you think of the constraints in regard to your time-allocation, what do you think you could change to improve your time-use?
14. What are constraints you think you cannot change, and why?

15. What do you think should be improved so that you can allocate more time to activities that are important and less to those that are not so important?
16. How do you think could your work potentially get more efficient?
17. Do you have suggestions what the Ghana Health Service should change in order to remove the biggest constraints, which you cannot solve by yourself?
18. When you think of the current performance of the whole DHMT and the district health service, how, in your opinion, can performance be improved in regard to efficient time allocation?

Specific questions to selected activities

19. Do you consider DHMT and committee meetings as being conducted efficiently? And what should be done to improve efficiency within the DHMT and committee meetings?
20. Could you please describe how health activities are usually planned within the DHMT and who is involved in these planning activities?
21. How are these health activities usually organised and coordinated?
22. How do you usually conduct monitoring activities?

9.2. Time recording tool

PERFORM
IMPROVING HEALTH WORKFORCE PERFORMANCE

Time-use study 2013

District:	**Job title:**						
Month							
Date:							
Managing and monitoring service provision	**Please note hours and minutes spent for activities such as: 1:15, for 1 hour and 15 minutes**						
Planning health activities/services/programmes							
Organising and coordinating health activities/services/programmes							
Health service monitoring and evaluation							
Health data management and reporting (incl. HMIS)							
Writing project reports							
Community visits and community durbars							
Research/study activities (including PERFORM)							
Human resource							
Management of HR (including reporting for HR system)							
Training and supervision of staffs (including preparation and organisation of such events)							
Staff durbars							
Material resources							
Management of buildings, and of medical and technical equipment (incl. procurement, maintenance, repairing and rehabilitation)							
Drugstore management and provision of drugs to health facilities							
Financing							
Management of finances and financial reporting							
Preparation of insurance claims							
General management activities							
DHMT/Committee meeting							
Other *planned* meetings and appointments (including preparation and organisation of meetings)							
Unplanned/emergency meeting							
Receiving unannounced visitors (such as health staff, clients, etc.)							
Participation in government workgroup, workshop, or conference							

PERFORM
IMPROVING HEALTH WORKFORCE PERFORMANCE

Time-use study 2013

Month:							
Date:							
Participation in third party (donor, NGO, etc.) workgroup, workshop,or conference							
Phone calls, mailing or letter writing/delivering							
Self-study							
Clinical activities							
Delivery of health promotion and prevention services							
Provision of clinical/curative services							
Other activities not mentionend above (please specify)							
_____							
_____							
_____							
Non-productive activities							
Waiting for the activity to start							
Travelling							
No activity due to electricity breakdown							
Break							
Devotion							
Private social commitment							
Total day:	*Mo*	*Tue*	*Wed*	*Thu*	*Fr*	*Sa*	*Su*
morning: from							
to							
afternoon: from							
to							
Total hours worked							
Absence in days (tick)							
on leave:							
sick leave:							
public holiday:							

9.3. Motivation: constructs, items and item mean scores

Constructs	Items	Mean score* (1-5)
1 General motivation	These days, I feel motivated to work as hard as I can	2.68
	I only do this job so that I get paid at the end of the month	3.98**
2 Burnout	I feel emotionally drained at the end of every day	3.21**
	Sometimes when I get up in the morning, I dread having to face another day at work	3.34**
3 Job satisfaction	Overall job satisfaction score	3.17
4 Intrinsic job satisfaction	I do not think that my work in my health facility is valuable these days	4.04**
	I believe that I accomplish something worthwhile in this job	4.01
5 Organisational commitment	I am proud to be working for this health facility	3.71
	I find that my values and this health facility's values are very similar	3.39
	I am glad that I work for this health facility rather than other facilities in the country	2.85
	This health facility really inspires me to do my very best on the job	3.49
6 Conscientiousness	I always complete my tasks efficiently and correctly	4.18
	I am a hard worker	4.58
	I do things that need doing without being asked or told	4.34
7 Timeliness and attendance	I am punctual about coming to work	4.23
	I am often absent from work	4.42**
	It is not a problem when I sometimes come late to work	3.78**

** a higher score indicates higher levels of motivation*

*** negatively worded questions: a higher score indicates disagreement to these statements*

9.4. Job satisfaction: constructs, items and item mean scores

Constructs*	Items**	Mean score† (1-5)
1 Remuneration	salary	2.30
	benefits	2.00
2 Work environment	medical and technical equipment	2.37
	physical condition of work place	2.75
	availability of drugs	3.04
	availability of consumables	3.31
	protection against occupational risks	2.89
	availability of stationeries	3.21
3 Workload	work schedule	3.22
	workload	2.67
	distribution of the work between members of your team	3.36
	distribution of the work between care and your other tasks	3.22
4 Tasks	variety of tasks	3.49
	match between skills and tasks	3.68
	level of professional responsibilities	3.93
5 Supervision	quality of interaction with supervisor	3.80
	support from supervisor	3.75
	recognition of quality of work by supervisor	3.94
6 In-service training	in-service training	3.71
	the way members of service are selected to participate in training activities	3.41
7 Management	application of rewards in your service in general	2.02
	opportunities to participate in decision making to solve problems of work organisation	3.04
	information given about the life of your service	2.97
	information given about the life of your health facility	3.04
8 Career development	ability to advance career	2.84
	criteria in place for career advancement	2.41
9 Morale	quality of care for patients in your service	3.61
	quality of your own work	4.07
	recognition of work by patients	3.85
	recognition of quality of work by colleagues	3.99

** all constructs refer to satisfaction with the dimensions of job satisfaction under review*

*** all items refer to satisfaction with these items*

† a higher score indicates higher levels of job satisfaction

9.5. Health worker retention study questionnaire

Questionnaire on job satisfaction and motivation

Dear Respondent

As part of the PERFORM research project "Supporting decentralised management to improve health workforce performance in Ghana, Uganda and Tanzania", which, in Ghana, is carried out by the School of Public Health, University of Ghana, we are conducting a study that investigates job satisfaction and worker motivation among health workers in the Eastern Region of Ghana. We appreciate that you agreed to participate in this study. Any information obtained in connection with this study that can be identified with you will remain confidential. In any written reports or publications, no one will be identified and only group data will be represented. You are free to withdraw your participation at any time.

Many thanks for your valuable contribution.

Part 1: Demographic and Work Related Information

Respondent Number: ☐☐☐ **Interviewer Number:** ☐ (1: Francis, 2: Bright, 3: Marc)

Time interview started: ☐☐h ☐☐min **Time interview ended:** ☐☐h ☐☐min

1. Date: _____

2. Name of Health Facility: _____ **3. District:** _____

4. Gender: Male ☐1 Female ☐2

5. How old are you ?: ☐☐years

6. What is your nationality ? Ghanaian ☐1 Other ☐2 , specify: _____

7. What is your faith? Christian ☐ Muslim ☐2 Other ☐3 , specify: _____

8. What is your profession ?:

Doctor ☐1 Nurse ☐ Community Health Nurse ☐3 Midwife ☐4

Other ☐5 , specify: _____

9. What is your highest qualification ?

Certificate ☐1 Diploma ☐2 1st degree (Bachelor) ☐3

2nd degree (Masters) ☐4 PhD ☐5 other ☐6 , specify: _____

10. Where did you obtain your qualification? Ghana ☐1 Abroad ☐2 If so, where? _____

11. Did you have any rural placement during your education and training? Yes ☐1 No ☐2

12. What is you current marital status? Married ☐1 Unmarried ☐2 Co-habitation ☐3

Divorced/ separated ☐4 Widowed ☐5

13. Does your partner also work? Full-time ☐1 Part-time ☐2 Casual ☐3

No ☐4 N/A ☐5

14. Do you have dependent children? Yes ☐1 No ☐2

14.1. If yes, what are their ages? _____

15. What is the size of your household? ☐☐ people

16. Do you live away from your family because of work ? yes ☐1 no ☐2

17. For how many people do you take care of with your salary?

(including yourself, children, parents, servants …

Mention the number of people for whom you ☐☐ people

18. Do you have people who report directly to you, who you manage as immediate supervisor? Yes ☐1 No ☐2

18.1. If yes, which type of supervisor are you? Head of department ☐1 Head of facility ☐2 Head of unit ☐3

Team leader ☐4 Other ☐5 , please specify: _____

19. How many years have you worked in your profession? ☐☐ years ☐☐ months

20. How many years have you worked in your current health facility ? ☐☐ years ☐☐ months

21. What is your employment status?

Government employed ☐1 Hospital employed ☐2 District employed ☐3

Community volunteer ☐4 Other ☐5 , please specify: _____

22. In which type of health facility do you work ? Hospital ☐1 Health Centre ☐2

CHPS ☐3 other ☐4 , specify: _____

23. Do you work in a public or private health facility ? Public (Governmental) ☐1 Private (CHAG) ☐2

24. Do you work full-time or part-time at your service? Full-time ☐1 Part-time ☐2

25. How much time, by estimate, do you need each day to travel from your home to your work place, door-to-door?

☐☐ h ☐☐ min.

26. What is your main type of transport to your workplace?

Own car ☐ Motorbike/Moped ☐ Public Transport ☐3 Facility bus ☐4

Bicycle ☐ Shared transport ☐ Walk ☐7

27. In which region and district have you been working before your posting in your current health facility?

27.1. None, first posting in current facility ☐ **(To interviewer: If first posting, go to Q. 33)**

27.2. Region: _____ 27.3. District: _____

28. Was the facility located in a rural or urban area? rural ☐1 urban ☐2

29. Of which type was your previous health facility? Hospital ☐1 Health Centre ☐2

CHPS ☐3 other ☐4 , specify: _____

30. Was your previous health facility a public, CHAG or private-for-profit facility? Public ☐1 CHAG ☐2

Private-for-profit ☐3

31. What was your profession in your previous facility? _____

32. How many years did you serve in the previous facility? ☐☐ years ☐☐ months

33. Do you have intentions to leave your current health facility?
(To interviewer: Explain that "intention" does not necessarily mean to have **concrete** plans to leave the facility. Give additional explanation when you feel the respondent does not fully understand the term "intention"!) Yes ☐1 No ☐2

33.1. If yes, why do you intend to leave your health facility? (Multiple answers are possible!)

To earn a better income ☐
Better career prospects ☐
Retirement ☐
To further your education ☐
Your child(ren)'s education ☐
Relocation of partner ☐
Moving to a preferred location ☐
Never intended to stay ☐
Extended family commitments or obligations ☐
other ☐10 , specify: _____

33.2. If yes, what do you want to do? Which of the following statements describe best your plan? (Choose only 1 answer)

(To interviewer: First read all statements to the respondent and then let him/her decide which statement describes best the respondent's plan. Do not read statement 7 and 8, when the respondent works in a public facility, and do not read statement 5 and 6, when the respondent works in a CHAG facility).

I want to stay within the same organisation, but change location	☐ 1	
I want to change to a job outside the health sector	☐ 2	
I want to study	☐ 3	
I want to leave the country	☐ 4	
I want to change from the public health sector to the CHAG (Christian Health Association of Ghana)	☐ 5	**Only for health workers serving in the public health sector!**
I want to change from the public health sector to the **private-for-profit** health sector	☐ 6	
I want to change from the CHAG to the public health sector	☐ 7	**Only for health workers serving in a CHAG facility!**
I want to change from the CHAG to the **private-for-profit** health sector	☐ 8	
Other, specify _____	☐ 9	

34. I am going to read to you a number of reasons that often cause health workers to leave their job. When you think of <u>your</u> situation at work, how do the following statements affect your own decision to stay at or leave your current job? For each statement there are 5 choices, ranging from "do not agree entirely" to "agree entirely". Please indicate your level of agreement with each of the statements.

	Do not agree at all	disagree	undecided or neutral	agree	Agree entirely	N/A
34.1 My salary is too low.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.2 I receive inadequate benefits (for ex. staff housing, rural allowances, free health care …).	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.3 My opportunities for career advancement are inadequate.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.4 The workload at my workplace is too high (amount of work, overwhelmed or not).	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.5 My job security is insufficient (certainty or uncertainty to loose your job).	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.6 I am lacking a professional network (with colleagues from outside the health facility).	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.7 I am feeling professionally isolated	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.8 My colleagues do not appreciate the work I do.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.9 My supervisor does not appreciate the work I do.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.10 I have frequent conflicts with my colleagues.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.11 I have poor relations with the management.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.12 There is an undesirable impact on health or stress level at my work place	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.13 The medical equipment at my work place is inadequate and/or is in an unacceptable condition.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.14 My work place is in an unacceptable condition.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.15 The travel time to my work place is too long.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.16 There is no work opportunity for my spouse.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
34.17 There are poor schooling opportunities for my children.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0

	Do not agree at all	disagree	undecided or neutral	agree	Agree entirely	N/A
34.18 I need to travel long distances to basic service facilities (e.g. market, bank, school, post office) from where I live.	☐1	☐2	☐3	☐4	☐5	☐0
34.19 The infrastructure in the village/town where I live is poor in general.	☐1	☐2	☐3	☐4	☐5	☐0
34.20 I am feeling personally isolated.	☐1	☐2	☐3	☐4	☐5	☐0
34.21 My family does not support me in regard to my job.	☐1	☐2	☐3	☐4	☐5	☐0
34.22 The community does not support me in regard to my job.	☐1	☐2	☐3	☐4	☐5	☐0
34.23 The community does not appreciate my work.	☐1	☐2	☐3	☐4	☐5	☐0

35. Are there other reasons not mentioned here that affect your decision to stay at or leave your current job ? If yes,

please specify: _____

_____

36. Are you currently searching for another job?

No, I am not searching ☐

No, but I want to search soon ☐

Yes, I am currently searching ☐

36.1. If yes, please describe your preferred job alternative: _____

PART 2: Job Satisfaction

Instructions: I will ask you a number of questions about your satisfaction with your current job. These questions focus on 6 aspects: Remuneration; Equipment and Infrastructure; Organisation and Job content; Training and Supervision; Morale Satisfaction; Management style. For each questions there are 5 answer choices. Please mark the assessment you think reflects most closely your own opinion. There are no right or wrong answers: what matters is that you express your opinion.

The response scale is as follows:

1. Very Unsatisfied
2. Unsatisfied
3. Undecided or Neutral
4. Satisfied
5. Very Satisfied

Only use "Not applicable" when the question does not affect you!

Questions on Remuneration	Very Unsatis-fied	Un-satisfied	Un-decided or neutral	Satis-fied	Very Satis-fied	Not applicable
37. Are you satisfied with your salary?	☐1	☐2	☐3	☐4	☐5	☐0
38. Are you satisfied with the regularity of your salary (salary is paid on time or late) ?	☐1	☐2	☐3	☐4	☐5	☐0
39. Are you satisfied with the benefits you receive? (for ex. staff housing, free health care, summer camps …) ?	☐1	☐2	☐3	☐4	☐5	☐0
40. Are you satisfied with your ability to advance with respect to your career ?	☐1	☐2	☐3	☐4	☐5	☐0
41. Are you satisfied with your job security (certainty or uncertainty whether to keep or loose your job) ?	☐1	☐2	☐3	☐4	☐5	☐0

Questions on Equipment and Infrastructure	Very Unsatis-fied	Un-satisfied	Un-decided or neutral	Satis-fied	Very Satis-fied	Not applicable
42. Are you satisfied with the availability of medical and technical equipment at your service ?	☐1	☐2	☐3	☐4	☐5	☐0
43. Are you satisfied with the physical condition of your work places at your service (e.g. space, cleanliness, ventilation, light, noise, comfort …) ?	☐1	☐2	☐3	☐4	☐5	☐0
44. Are you satisfied with the availability of drugs at the level of your service ?	☐1	☐2	☐3	☐4	☐5	☐0
45. Are you satisfied with the availability of consumables (for ex.: cotton, alcohol …) at the level of your service ?	☐1	☐2	☐3	☐4	☐5	☐0
46. Are you satisfied with the available protection at your service against occupational risks (for ex. : against exposure to HIV, against other risks) ?	☐1	☐2	☐3	☐4	☐5	☐0
47. Are you satisfied with the availability of stationeries (for ex. printing materials, scheduler, etc.) at the level of your service?	☐1	☐2	☐3	☐4	☐5	☐0

Questions on organisation and content of work	Very Unsatis-fied	Un-satisfied	Un-decided or neutral	Satis-fied	Very Satis-fied	Not applicable
48. Are you satisfied with your work schedule ?	☐1	☐2	☐3	☐4	☐5	☐0
49. Are you satisfied with your work load (amount of work, overwhelmed or not) ?	☐1	☐2	☐3	☐4	☐5	☐0
50. Are you satisfied with the distribution of the work load between the members of your team?	☐1	☐2	☐3	☐4	☐5	☐0
51. Are you satisfied with the quality of interaction with other staff members at the level of your service ?	☐1	☐2	☐3	☐4	☐5	☐0
52. Are you satisfied with the quality of interaction with your supervisor?	☐1	☐2	☐3	☐4	☐5	☐0

Questions on organisation and content of work, continued …	Very Unsatis-fied	Un-satisfied	Un-decided or neutral	Satis-fied	Very Satis-fied	Not applicable
53. Are you satisfied with your variety of tasks (tasks of all sorts) ?	☐1	☐2	☐3	☐4	☐5	☐0
54. Are you satisfied with the distribution of your work time between care and your other tasks ?	☐1	☐2	☐3	☐4	☐5	☐0
55. Are you satisfied with the match between your skills and your tasks (do your tasks correspond to your skills) ?	☐1	☐2	☐3	☐4	☐5	☐0
56. Are you satisfied with the level of professional responsibilities entrusted in you ?	☐1	☐2	☐3	☐4	☐5	☐0
57. Are you satisfied with the collaboration with other departments or units in your service (for ex.: maternity and laboratory collaboration with the central pharmacy, etc. …) ?	☐1	☐2	☐3	☐4	☐5	☐0

Questions on Training and Supervision	Very Unsatis-fied	Un-satisfied	Un-decided or neutral	Satis-fied	Very Satis-fied	Not applicable
58. Are you satisfied with how your **initial** training (theoretical and practical) prepared you to respond to realities on the ground ?	☐1	☐2	☐3	☐4	☐5	☐0
59. Are you satisfied with the in-service training you receive ? (for ex. workshops, seminars, etc.)	☐1	☐2	☐3	☐4	☐5	☐0
60. Are you satisfied with the way members of the service are selected to participate in training activities ?	☐1	☐2	☐3	☐4	☐5	☐0
61. Are you satisfied with the support (advice, coaching) you receive from your supervisor ?	☐1	☐2	☐3	☐4	☐5	☐0

Questions on Morale Satisfaction	Very Unsatis-fied	Un-satisfied	Un-decided or neutral	Satis-fied	Very Satis-fied	Not applicable
62. Are you satisfied with the reputation or the image of your health facility with the public ?	☐1	☐2	☐3	☐4	☐5	☐0
63. Are you satisfied with the quality of care for patients in your service?	☐1	☐2	☐3	☐4	☐5	☐0
64. Are you satisfied with the quality of your own work?	☐1	☐2	☐3	☐4	☐5	☐0
65. Are you satisfied with the utilisation of services you provide to patients?	☐1	☐2	☐3	☐4	☐5	☐0
66. Are you satisfied with the recognition of your work by **patients**?	☐1	☐2	☐3	☐4	☐5	☐0
67. Are you satisfied with the recognition of the quality of your work by your **colleagues**?	☐1	☐2	☐3	☐4	☐5	☐0
68. Are you satisfied with the recognition of the quality of your work by your **supervisor**?	☐1	☐2	☐3	☐4	☐5	☐0

Questions on Management Style	Very Unsatis-fied	Un-satisfied	Un-decided or neutral	Satis-fied	Very Satis-fied	Not applicable
69. **In general**, are you satisfied with the application of sanctions in your service ? (for ex. sanctions for often coming late to work).	☐1	☐2	☐3	☐4	☐5	☐0
70. **In general**, are you satisfied with the application of rewards in your service ? (for ex. extra allowances for good work performance).	☐1	☐2	☐3	☐4	☐5	☐0
71. Are you satisfied with the criteria in place at your service for career advancement?	☐1	☐2	☐3	☐4	☐5	☐0
72. Are you satisfied with the respect with which your superiors treat you?	☐1	☐2	☐3	☐4	☐5	☐0
73. Are you satisfied with the opportunities to participate in decision making to solve the problems of your work organisation (are your superiors listening to your ideas, your suggestions when there are problems to solve in the workplace) ?	☐1	☐2	☐3	☐4	☐5	☐0

Questions on Management Style, continued …	Very Unsatis-fied	Un-satisfied	Un-decided or neutral	Satis-fied	Very Satis-fied	Not applicable
74. Are you satisfied with the information you are given about the life of your **service** (problems, activities, decisions, financial management) ?	☐1	☐2	☐3	☐4	☐5	☐0
75. Are you satisfied with the information you are given about the life of your **health facility** (problems, activities, decisions, financial management)?	☐1	☐2	☐3	☐4	☐5	☐0

76. Classify the six dimensions of professional satisfaction according to the importance they have to you
(To interviewer: Show the dimensions to the respondent and explain the procedure. **Note "1" for the most important, and so forth up to "6" for the least important**)

_____: Remuneration

_____: Equipment and Infrastructure

_____: Organisation and Content of Work

_____: Training and Supervision

_____: Morale Satisfaction

_____: Management Style

	Very Unsatis-fied	**Un-satisfied**	**Un-decided or neutral**	**Satis-fied**	**Very Satis-fied**
77. To sum up, what is your overall job satisfaction?	☐1	☐2	☐3	☐4	☐5

PART 3: Work Motivation

Instructions: I will now read to you a number of statements in regard to your work motivation at your current work place. As before, for each statement there are 5 possible answer choices. Please mark the assessment you think reflects most closely your own opinion. Remember that there are no right or wrong answers: What matters is that you express your opinion.

The response scale is as follows:

1. Do not agree at all
2. Disagree
3. Undecided or Neutral
4. Agree
5. Agree entirely

Only use "Do not know" if you either cannot form an opinion on this statement of if this statement does not affect you!

	Do not agree at all	disagree	undecided or neutral	agree	Agree entirely	Do not know
78. These days, I feel motivated to work as hard as I can.	☐1	☐2	☐3	☐4	☐5	☐0
79. I only do this job so that I get paid at the end of the month.	☐1	☐2	☐3	☐4	☐5	☐0
80. I do this job as it provides long term security for me.	☐1	☐2	☐3	☐4	☐5	☐0
81. I feel emotionally drained at the end of every day.	☐1	☐2	☐3	☐4	☐5	☐0
82. Sometimes when I get up in the morning, I dread having to face another day at work	☐1	☐2	☐3	☐4	☐5	☐0
83. I do not think that my work in my health facility is valuable these days.	☐1	☐2	☐3	☐4	☐5	☐0
84. I am proud to be working for this health facility.	☐1	☐2	☐3	☐4	☐5	☐0
85. I find that my values and this health facility's values are very similar.	☐1	☐2	☐3	☐4	☐5	☐0
86. I am glad that I work for this health facility rather than other facilities in the country.	☐1	☐2	☐3	☐4	☐5	☐0
87. I feel very little committed to this health facility.	☐1	☐2	☐3	☐4	☐5	☐0
88. I believe that I accomplish something worthwhile in this job.	☐1	☐2	☐3	☐4	☐5	☐0
89. This health facility really inspires me to do my very best on the job.	☐1	☐2	☐3	☐4	☐5	☐0
90. I cannot be relied on by my colleagues at work (colleagues cannot depend on you).	☐1	☐2	☐3	☐4	☐5	☐0
91. I always complete my tasks efficiently and correctly.	☐1	☐2	☐3	☐4	☐5	☐0
92. I am a hard worker.	☐1	☐2	☐3	☐4	☐5	☐0
93. I do things that need doing without being asked or told.	☐1	☐2	☐3	☐4	☐5	☐0
94. I am punctual about coming to work.	☐1	☐2	☐3	☐4	☐5	☐0
95. I am often absent from work.	☐1	☐2	☐3	☐4	☐5	☐0
96. It is not a problem if I sometimes come late to work.	☐1	☐2	☐3	☐4	☐5	☐0

PART 4: PERFORM Management Interventions

The district in which you work has been selected as one of the districts in which the PERFORM management interventions will be carried out. The project tries to strengthen DHMT management in order to improve performance of the health workforce. As part of the PERFORM project we are trying to understand the factors affecting workforce performance in order to find ways to improve the performance of the health workforce in your district.

97. When you think of the problems in your health facility, what are the areas, which you regard as most important to be improved or changed?

_____

_____

_____

_____

_____

Attitudes to Change				
98. Do you think changes in the way of doing the job would be a good thing to improve the activities of your service, even if these changes had effects on your job ?	Yes	☐ 1	No	☐ 2
99. If there are changes in the way of doing the job, do you **spontaneously** do efforts to adapt ?	Yes	☐ 1	No	☐ 2
100. If there are changes in the way of doing the job, does it bother you?	Yes	☐ 1	No	☐ 2

Are there other elements that were not addressed in this questionnaire and that increase or decrease your job satisfaction and/or motivation?

_____

_____

_____

_____

_____

_____

Thank you for the interview and for your valuable contribution. In case we have follow-up questions in regard to the interview, can I have your mobile number?

Mobile Number: _____ Denied ☐

9.6. Ethics approval letter from the GHS

GHANA HEALTH SERVICE ETHICAL REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted.

My Ref. :GHS-ERC: 3
Your Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Tel: +233-302-681109
Fax + 233-302-685424
Email: Hannah.Frimpong@ghsmail.org

20th June, 2012

MARC BONENBERGER, Principal Investigator
Swiss Tropical and Public Health Institute
Swiss Centre for International Health

ETHICAL CLEARANCE - ID NO: GHS-ERC:13/05/12

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol titled:

"Can health workforce management actions positively influence retention and attrition of health workers? A study on human for health in the Eastern Region of Ghana"

This approval requires that you submit periodic review of the protocol to the Committee and a final full review to the Ethical Review Committee (ERC) on completion of the study. The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Please note that any modification of the project must be submitted to the ERC for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the ERC within seven days verbally and fourteen days in writing.

You are requested to submit a final report on the study to assure the ERC that the project was implemented as per approved protocol. You are also to inform the ERC and your mother organization before any publication of the research findings.

Please always quote the protocol identification number in all future correspondence in relation to this protocol

SIGNED.....
DR. CYNTHIA BANNNERMAN
(GHS-ERC VICE-CHAIRMAN)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra

9.7. Curriculum vitae

Personal Information

Name	Marc Bonenberger
Date of birth	11 April 1977
Nationality	German
Marital status	Married

Higher Education

2011-2015	Doctor of Philosophy (Ph.D.) in Epidemiology Swiss Tropical and Public Health Institute, University of Basel
2007-2010	Master of Arts (M.A.) in African Studies Centre for African Studies, University of Basel
2005-2007	Bachelor of Arts (B.A.) in Social Anthropology and History University of Basel
2002-2005	Studied African Studies, Cultural Anthropology, and Prehistoric Archaeology, Humboldt University of Berlin, Germany (after the "Zwischenprüfung" change to the University of Basel)
1998-2000	Abitur High school in Düsseldorf, Germany, at the Riehl-Kolleg, Secondary school for adults. Main subjects: Mathematics and Biology
1994-1998	Apprenticeship at Mercedes-Benz AG, Düsseldorf, Germany, as car mechanic

Professional Experience

2011-2015	Ph.D. Student at Swiss Tropical and Public Health Institute, Swiss Centre for International Health, Health Systems Support Unit, Basel
2012-2014	Visiting Ph.D. Fellow at School of Public Health, University of Ghana, Legon, Ghana
2009	M.A. Research Project Student at Ministry of Health and Social Welfare, Stone Town, Zanzibar

2007-2011	IT Support & Operating, ImproWare Inc., Pratteln
2007-2008	Student Assistant in the project "Quality Assurance" of the Deanery Phil I, University of Basel, Basel
2003-2005	Assistant of the Project Management at Messe Düsseldorf, Düsseldorf, Germany
2001-2002	Civil Service for SOSpito – Ambulatory elderly care, Berlin, Germany

Reviewing Experience

Since 2015	PLoS One Reviewed one manuscript
Since 2014	Human Resources for Health Reviewed two manuscripts

Advanced Training

2014	Empirische Forschung zu Arbeit und Personal, University of Basel GIS for Public Health, Swiss TPH, Basel
2013	Data Analysis in Epidemiology, Swiss TPH Basel Writing a journal article – and getting it published, University of Bern
2011	Health systems, Swiss TPH Basel Statistical modelling, Swiss TPH Basel Basic Biostatistics I, Swiss TPH Basel

Peer-reviewed Publications

Bonenberger, M., Aikins, M., Akweongo, P., Bosch-Capblanch, X. & Wyss, K. 2015. What Do District Health Managers in Ghana Use Their Working Time for? A Case Study of Three Districts. *PLoS One,* 10**,** e0130633.

Bonenberger, M., Aikins, M., Akweongo, P. & Wyss, K. 2014. The effects of health worker motivation and job satisfaction on turnover intention in Ghana: a cross-sectional study. *Hum Resour Health,* 12**,** 43.

Bonenberger, M., Aikins, M., Akweongo, P. & Wyss, K. Factors influencing the work efficiency of district health managers in low-resourced settings: a qualitative study in Ghana. Under review at *BMC Health Services Research*.

Other Publications

Bonenberger M., Aikins M., Akweongo P., Amon S., Bosch-Capblanch X., Wyss K. 2013. Motivation, job satisfaction and retention of health workers in the Eastern Region of Ghana: study report. Legon: School of Public Health, University of Ghana.

Bonenberger M. 2011. Retention of retrained family physicians and nurses at their workplace in Tajikistan. Swiss Agency for Development and Cooperation (SDC), Sino Nr. 93.

Conference Proceedings

2015 *9th European Congress on Tropical Medicine and International Health, Basel, September 2015*

Bonenberger M., Aikins M., Akweongo P., Wyss K. Factors influencing the work efficiency of district health managers in low-resource settings: a qualitative study in Ghana

Bonenberger M., Aikins M., Akweongo P., Bosch-Capblanch X., Wyss K. What for district health managers in Ghana use their working time? A time use survey in three districts.

2014 *Swiss Public Health Conference, Olten, August 2014*

Bonenberger M., Aikins M., Akweongo P., Wyss K. The effects of health worker motivation and job satisfaction on turnover intention in rural Ghana. Can district health managers improve retention?