

Motivation, money and respect:

a mixed-method study of Tanzanian non-physician clinicians

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Abstract

Poor quality of care is a major concern in low-income countries, and is in part attributed to low motivation of healthcare workers. Non-physician clinicians (mid-level cadre healthworkers) are central to health care delivery in half of the countries in Africa, but while much is expected from these clinicians, little is known about their expectations and motivation to perform well. Understanding what motivates these healthworkers in their work is essential to provide an empirical base for policy decisions to improve quality of health care. We conducted a mixed-method study to evaluate factors affecting motivation, including reasons for varying levels of motivation, amongst these clinicians in Tanzania. Using a conceptual framework of ‘internal’ and ‘environmental’ domains known to influence healthworker motivation in low-income countries, developed from existing literature, we observed over 2000 hospital consultations, interviewed clinicians to evaluate job satisfaction and morale, then designed and implemented a survey instrument to measure work motivation in clinical settings. Thematic analysis (34 interviews, one focus group) identified social status expectations as fundamental to dissatisfaction with financial remuneration, working environments and relationships between different clinical cadres. The survey included all clinicians working in routine patient care at 13 hospitals in the area; 150 returned sufficiently complete data for psychometric analysis. In regression, higher salary (>\$180/month) was associated with ‘internal’ motivation (score +9.4%, $p= 0.05$); amongst higher earners, motivation was also associated with higher

qualification (score +14%, $p=0.04$) and salary enhancements (score +14%, $p=0.03$). Salary was thus a clear prerequisite for motivation. Our results are consistent with the hypothesis that non-salary motivators will only have an effect where salary requirements are satisfied. As well as improvements to organisational management, we put forward the case for the professionalisation of non-physician clinicians.

Introduction

Growing evidence of poor quality of health care is of major concern in low-income countries (Arifeen, Bryce, Gouws, Baqui, Black, Hoque et al., 2005; Krause & Sauerborn, 2000; Rowe, Onikpo, Lama, Cokou, & Deming, 2001) and is in part attributed to low work motivation of healthworkers (World Health Organisation, 2006). The importance of functioning infrastructure and human resources for routine health services have now been recognised (United Nations, 2000). Shortages of trained healthworkers is a key problem (Nullis-Kapp, 2005), but there is additionally evidence of low productivity of healthworkers in different settings (Alcazar & Andrade, 2001; Kurowski, Wyss, Abdulla, Yemadji, & Mills, 2004) and poor performance even when skills and resources are sufficient (Leonard, Masatu, & Vialou, 2007). This highlights the importance of work motivation of existing healthworkers, defined as ‘an individual’s degree of willingness to exert and maintain an effort towards organizational goals’ (Franco, Bennett, & Kanfer, 2002). One particular concern across Africa, including Tanzania, is the poor quality of care at district hospitals (English, Esamai, Wasunna, Were, Ogutu, Wamae et al., 2004; Reyburn, Mwakasungula, Chonya, Mtei, Bygbjerg, Poulsen et al., 2008), where seriously ill patients are referred to and where investment in facilities has been greatest. Low performance and high attrition of healthworkers have in part been attributed to low motivation, an aspect of the human resource crisis which now needs to be better understood if improvements in the performance of public health services is to be achieved (Hongoro & McPake, 2004; World Health Organisation & The World Bank, 2003).

Until relatively recently there was an often unstated assumption by policymakers that healthworkers were altruistically motivated, to work to the best of their ability regardless of working conditions; policy towards staff has been driven by this assumption with little priority given to identifying or addressing other motivating factors (Le Grand, 2006). Healthworker motivation has been demonstrated to be complex, however, and is increasingly seen as based on self-interest and thereby amenable to change. The considerable literature on this in the

industrialised North has however not been replicated in Africa. Numerous instruments to measure worker motivation exist for European and North American settings (Furnham, 2005; Smith, Kendall, & Hulin, 1969), but applying them to healthworkers in low-income countries has often not been successful (Kanfer, 1999). Staff expectations from work, and organisational and client expectations from staff are likely to differ in different social contexts and this must be taken into account when considering worker motivation (Herbig & Genestre, 1997). As yet there is no validated instrument for measuring healthworker motivation in low-income countries.

In Tanzania, in common with other countries in Africa, there is increasing belief that healthworker motivation is important, but policymakers have relatively little empirical evidence to inform their decisions. The Tanzanian Ministry of Health mission statement emphasises that health services are ‘delivered by well motivated human resources’ (Tanzania Ministry of Health, 2005) and the 2003-2008 health plan emphasises financial remuneration in motivating healthworkers (Tanzania Ministry of Health, 2003), suggesting an increase in the importance placed on worker self-interest. Services have been contracted out at the district level (Tanzania Ministry of Health, 2001), and performance-related-pay schemes are being introduced alongside accelerated salary increase schemes (Tanzania Ministry of Health, 2008).

Non-physician clinicians in Tanzania are termed Clinical Officers (COs) and Assistant Medical Officers (AMOs), cadres that are clinically trained (COs for three years, AMOs for a further two) and are below the level of fully qualified medical doctor. These cadres, particularly COs, are the mainstay of the healthcare system in Tanzania, including in hospital settings. Similar NPC cadres are also prevalent in 24 other countries in Africa, variously termed medical assistant, health officer, physician assistant or nurse clinician (Mullan & Frehywot, 2007). NPCs are often educationally and socially distinct from doctors and they often do not have professional status, instead their cadres exist outside of internationally recognised professional bodies such as medical doctors and nurses (Dovlo, 2004). However, they do make the majority

of clinical and spending decisions in the formal health sector in most countries where they exist. Few studies have specifically focused on the role of these workers, but an understanding of what motivates them in their work is essential if quality improvement incentives are to be successful.

We set out to understand what motivated non-physician clinicians in Tanzania using a mixed method approach to capture both a thematic understanding of motivation on the part of clinicians and a quantitative evaluation of its determinants in a larger sample of NPCs. The study design and conceptualisation of work motivation was informed by an existing conceptual framework for public sector healthworkers in low and middle income countries (Franco, Bennett, & Kanfer, 2002). We adapted this framework to reflect the motivation needs of NPCs, based on fieldwork in Tanzanian hospitals, and make recommendations for improving motivation in this level of healthworker, heavily relied upon in many African countries.

Conceptual framework

Franco et al.(2002) have developed an in-depth conceptual framework of healthworker motivation in low-income and transition country settings, drawn from theories from multiple disciplines together with their research findings. They present three levels of factors that affect a worker's willingness and ability to perform in line with organisational goals (Figure 1): the individual level of worker self-concept, expectations, experience of outcomes, and technical and intellectual capacity; the organisational level of structures, resources, processes and culture; and a broader level of political and economic change with a particular interest in the effect of health sector reform on healthworker motivation through these levels. This framework has been widely used in forming a basis for understanding influences on healthworker behaviour in different country settings (Gilson, Palmer, & Schneider, 2005; Rowe, de Savigny, Lanata, & Victora, 2005; World Health Organisation, 2006).

The quantification of motivation, based on this conceptual framework, has been undertaken by Bennett et al.(2001) amongst hospital workers in Jordan and Georgia and by Penn-Kekana et al. (2005) amongst maternal health nurses at hospitals and clinics in South Africa. Both of these studies analysed the processes of motivation, but developed useful tools to measure different components of motivation and we made use of these to measure overall level of motivation in two domains of internal (personal values such as job vocation) and environmental (attitudes towards working environment such as workload) motivation levels.

Few researchers have specifically analysed the motivation of non-physician clinicians, having focused mainly on nurses or physicians for whom standard roles and expectations exist both on local and international levels. For NPCs such roles are less often well established and the structures that affect motivation may differ. In this paper, we use the framework set out by Franco et al.(2002) to explore clinician motivation in Tanzania firstly with a qualitative study and secondly, following the work of other researchers together with the results from our qualitative study, we revised the conceptual framework to with a focus on creating an instrument to measure motivation (Figure 2) and tested the effect of demographic and work history determinants on level of motivation. We use the results of the qualitative and quantitative components of our study to expand Franco et al's original framework to include concepts specific to NPCs.

Methods

Study setting and ethics

The study took place in the Kilimanjaro and Tanga regions of Tanzania, purposively selected after a series of studies identified poor quality of care by non-physician clinicians at the hospital level (Reyburn, Mbatia, Drakeley, Carneiro, Mwakasungula, Mwerinde et al., 2004; Reyburn, Mwakasungula, Chonya et al., 2008). Interventions to improve quality of care at these hospitals have been on-going through a number of different government and non-government

initiatives, however little is known about the motivation of clinicians working in these settings. Ethical approval was granted for the research by the National Institute of Medical Research in Tanzania, and by the London School of Hygiene & Tropical Medicine in the UK. Permission for the research was obtained from district and hospital management and all participants gave informed written (or oral, for patients) consent to be observed, interviewed or surveyed. Unique identification numbers were used in place of names during the research process and pseudonyms are used to provide anonymity in this paper.

Qualitative phase

The purpose of the qualitative research phase was to understand the reasons for poor quality of practice amongst clinicians, and findings during this research identified the importance of motivation in attitudes towards work and in performance. Ethnographic fieldwork was conducted at two district hospitals over a six month period in 2006-2007 by one of the authors (CC). This consisted of: observation of over 2000 clinician-patient consultations, 80 clinical meetings (mostly conducted in Kiswahili, assisted by two research assistants) and the day-to-day routine of clinicians as well as informal and formal interviews with all 34 clinicians working routinely with inpatients and outpatients. Interviews were conducted mostly in English, in the privacy of consulting rooms after consulting hours or in secluded areas of the hospital grounds and were tape recorded or noted in detail. The ethnography fieldnotes and interview transcripts were analysed line-by-line, coding concepts inductively. Trees of codes were created, containing related concepts of statements and observations, using Nvivo version 7 to code and link the qualitative data. The ethnographic fieldwork contributed to a deeper understanding of the working environment of NPCs in this setting and enabled the development of further research questions and the survey instrument as well as interpretation of data presented in this paper.

Themes identified at this stage that were specific to motivation were followed up in a focus group discussion, using standard methods, with clinical officers at the end of the period of ethnography. One FGD was found to be sufficient to clarify topics identified during the ethnography. Analysis of the FGD also used inductive coding as well as themes defined by the topic guide. Themes were developed from the concepts generated in the analysis of the ethnography, interviews and FGD and were related to the findings of the quantitative survey through an iterative process, linking codes from the different datasets together in Nvivo coding trees.

Survey instrument

We created a unique measurement instrument of a series of statements to measure the two domains of interest, 'internal' and 'environmental', using 37 items from Penn-Kekana et al.'s (2005) study and 15 of the more consistent item statements from Bennett et al.'s (2001) tool, together with 10 items developed from the results of our qualitative study. First, to tap aspects of internal motivation, the statements were designed to measure job satisfaction, organisational commitment, intention to leave, attitudes towards patients, self-efficacy, work ethic, vocation and attitude to change. Second, to measure environmental motivation, we used or created statements related to job security, salary, resource availability, risks from patients, justice within the organisation, management support and policy environment. Responses to each statement were structured as agreement on a 5-point likert scale ranging from 'strongly disagree' to 'strongly agree'. The questionnaire, complete with a list of domains and statements, with citations of statement sources is available from the authors. The survey tool was exploratory and, after piloting, we included 62 items in anticipation of losing at least half to missing data, correlation between items and low factor loadings.

The layout of the questionnaire, with the introductory wording, was adapted from the Michigan Organizational Assessment Questionnaire (Cammann, Fichman, Jenkins, & Klesh, 1983).

Demographic and work history details were included at the start of the questionnaire, including salary bracket (divided at the standard monthly wage, ~US\$180). To check for content validity, the questionnaire was translated into Kiswahili and back-translated by another translator into English and was then piloted with 8 clinicians who were interviewed afterwards to identify ambiguities in the questions and also to check the duration for completing the questionnaire. The full questionnaire is available from the authors upon request.

Survey sample and data collection

We aimed to capture a total sample of all clinical officers (COs) working at the 13 public hospitals in our two study regions, Kilimanjaro and Tanga, as well as assistant medical officers (AMOs) at smaller hospitals where a smaller number of staff necessitates AMO involvement in routine patient consultations, usually the remit of COs. We needed a sample size of at least 100 respondents, the minimum necessary for factor analysis (Guadagnoli & Velicer, 1988).

Clinicians qualified as Rural Medical Aides (RMAs) work with the same remit as COs and were therefore grouped together with COs. There was only one medical doctor (MD) who regularly attended outpatient clinics and he was grouped with the AMOs for analysis.

Letters of invitation were sent to each clinician working at a hospital in the study area, asking them to attend a meeting about the research on a specific during their regular hospital clinical meeting. At this meeting, we gave a description of the proposed research and clinicians were asked to volunteer to participate and were given an envelope containing the questionnaire with a unique ID stamp and a pen. We asked clinicians to return their completed questionnaires the following day, and we followed up all clinicians who failed to do so through letters and subsequent hospital visits. We provided a non-financial incentive for all clinicians participating in the survey, a copy of a handbook of tropical medicine. Survey data were double entered using Microsoft Access (Microsoft Corp 2003).

Survey analysis

We undertook item reduction to eliminate items with poor psychometric performance, following established methodology, eliminating items missing >10% data, items that >80% participants gave the same score for, items that were closely correlated and items that did not load on any factors up to a level of 0.4 in initial factor analysis (Ferguson & Cox, 1993; Hilari, Byng, Lamping, & Smith, 2003; Nunnally, 1978). Factor analysis, to identify groups of variables correlated with one another that reflect separate underlying processes, followed classic techniques (Tabachnick & Fidell, 1996) for the remaining items. Maximum likelihood methods were used (Fabrigar, Wegener, & Strahan, 1999) with promax oblique rotation to minimise the number of variables that had high loadings on one or more factor whilst allowing factors to be correlated. A factor loading of over 0.40 was considered sufficiently high to assume a strong relationship with the factor. The optimum number of factors was estimated by a scree test and multiple test runs. The item loading tables were then examined, after rotation, for the best fit to the data (defined as: item loadings above 0.30, no or few item cross-loadings and no factors with fewer than three items) (Costello & Osborne, 2005). Chronbach's alpha was used to measure the internal consistency of the instrument. Construct validity within the scale was also indicated by at least three items per factor, and absence of cross-loading.

Scores on each of the motivation factors were estimated using a regression approach whereby coefficients were computed from the loading matrix (Table 2) and used to weight standardised variable scores (the original responses of participants for each item) to produce factor scores (Tabachnick & Fidell, 1996).

For univariate analysis, analysis of variance (F-test) was used to compare differences between mean scores between respondents by demographic, work history and hospital specific variables. Linear regression was then used for multivariate analysis, adding variables significant in univariate analysis ($p < 0.1$) into a multivariable model one at a time, keeping variables remaining statistically significant in the models. The analysis was adjusted for clustering of

clinicians at the hospital level using a robust correction to the standard error. Analysis of the survey was conducted in STATA 10 (Statacorp, Texas 2007) and SPSS 14 for Windows.

Integration of methods

The qualitative phase provided a perspective on clinician motivation from the voices of the healthworkers themselves, spoken in response to day-to-day situations during the ethnography as well as in discussion with colleagues in the FGD. This highlighted factors that healthworkers perceived as important in their motivation and also informed the design of the survey instrument. In turn, the survey enabled exploration of variation in motivation levels between healthworkers and potential demographic and work history factors that might affect motivation. The results therefore present themes identified by both qualitative and quantitative methods, with each adding to the interpretation of the other.

Results

Of the 179 clinicians invited to participate in the survey, 177 returned completed questionnaires, with two clinicians untraceable during the follow-up period. Table 1 outlines the hospital, demographic and work history details of the questionnaire participants. Factor scores could not be calculated for 27 participants due to one or more missing items on their questionnaires (of these participants 18 had only one item missing, 6 had two or three missing, two had five missing and one missed 7). The demographic and work history details of these participants were not significantly different to those included in the analysis.

Motivation themes

Participants discussed motivation in terms of vocation and commitment, but most often in terms of environmental factors that affected participants' willingness or perceived ability to work well. These were predominantly financial remuneration, perception of status, and organisational, social and physical working environments. That the consequences of low

motivation included poorer quality of technical care and services for patients was explicitly stated, and implicit in discussions of motivation.

‘In KiSwahili we call it *Wito*, “on the heart”’

Many of the clinicians stated during the in-depth interviews that their choice of work was motivated by a desire to help patients. A few said that their motivation remained high in spite of poor working conditions and low salaries, although this assertion was rare.

Fatima, AMO at HI: ‘We say this is a patient job. In KiSwahili we call it Wito, ‘on the heart’... the job respect from the heart. Because if you minded according to the salary, it is very difficult in our health sector until nowadays... even on my side, I am assistant medical officer but ... still I am being paid as a clinical officer... It has been two years’

Mohammed, CO at HII ‘The reason behind is to save... as though the patients are family. It is for those who are sick or need medical help... If you treat a patient, treat him as your patient coming from your house, “here is my patient, I came with him from my house”, I think your treatment will be better. Money, even training does not change commitment. It comes from your heart’.

And occasionally respondents reported feeling proud of their work, motivated by being able to take care of their family, and by being perceived as a person who put others’ needs before their own.

Saidi, CO at HII: ‘My first choice was <to be a> Medical Assistant.. I can <look after> my family, look after my friends, take them to the hospital first. I like it, I am very proud’

John, CO at HI: They [patients] respect us and they appreciate us. They know we are always working day and night. For example a five year old child asked his mother ‘do doctors sleep?’, ‘why?’ asked the mother, and the child said ‘because I always see them in the hospital every time’. The mother explained that doctors work in shifts. Also people think it is voluntary, like mission work, because you cannot be paid for this work, so people respect that you are working voluntarily.

*CC: So the salary doesn’t compensate the work?
John: No it cannot. For example if there is an accident you may wait around [at the hospital]. The government says to work 8 hours but we work 12 and will not be compensated for that time.*

Most recognised the importance of salary, although for those who worked at the Church, as well as for some older clinicians, vocation was still stated to be important, and some appeared divided between the need to work vocationally whilst needing financial compensation, as illustrated by this statement:

Lela, CO at HI: 'The problem is that people aren't admitting money is a problem for motivation. But although we do need money for our lives this work of nurses and doctors is a vocation. If it is only about money people would not get healthcare and they would suffer'.

For many clinicians, especially the younger clinical officers, the poor working environment and low salary undermined the assumption intrinsic in health policy that they should be motivated by the vocational nature of clinical work, and respondents appeared to resent the idea that they should be working as a 'calling', perhaps reflecting changing expectations from a changing economy.

Baraka, CO at HII: (in FGD, Translated) I will still say that our motivation is not so good because as we had seen, our work here in the hospital and not just here, its everywhere, and we are told it's a calling, that means that you are a person that can be called anytime even if its night, daytime, when it's raining and there is no direct motivation that is seen there.

David, CO at HII: (in FGD, Translated) But the leaders that we are under, they are political, they say that health work is volunteering, that it's like a calling... Most of us work in an environment where we are not motivated

For most clinicians, even if they were initially motivated by the desire to help patients, their current working situation dominated over this desire and most reported wanting to leave their current roles to move to a higher cadre or a different sector.

Hawa, CO at HII: CC: Hawa: CC: Hawa: I like to see someone who was sick becoming not sick anymore. I like to do that job And are you happy to stay as a CO or..? No! It is not the level I want to be. I want to go further. Sometimes with these things we are facing I think I would like to do something different to this Like what? I was thinking of doing surveying.

This series of quotes demonstrates that the assumption that clinicians are motivated by the vocational nature of their work may not hold for most clinicians, and particularly younger

clinical officers. Environmental factors were very important in the motivation and commitment of respondents.

‘You think about how you might get enough money instead of the patients’

Of environmental factors affecting attitudes towards work, salary was the most often discussed, in all in-depth interviews. For most, the insufficient level of salary was the key issue, with some discussing salary supplementation for extra work outside and inside the hospital, as well as problems with the decentralised system and differences between the salaries of different cadres.

CC: Can you tell me the difficulties you face, as a clinical officer, in your every day work?

Rose, CO at HII: The salary. I have to pay my rent, electricity bills, for clothes and to help relatives. It is not enough.

CC: Can you find any work outside the hospital to cover your costs?

Rose: No - the time is not allowing.

CC: How about others, do they get any opportunities to make extra money?

Rose: Others may be have small medical stores and dispensaries... you know they have been living here for a long time. They concentrate on both.

Silas, CO at HII: With the salaries for public workers, people have to look after themselves before they can think of helping the government. But if they've got such small salaries you can't afford to think beyond your family. You think about how you might get enough money instead of <thinking about> the patients... It depends on your lifestyle if the money is enough for what you need

CC: So what do you do?

Silas: You just look for something else, another way to get money. That's what I was saying I think about a lot. If the monthly salary is not satisfying needs, to support the family and to spend time with your girlfriend and your friends, then you need to look elsewhere.

Paul, CO at HI: 'The problem here we have... especially for the healthworkers.. these salaries, the on-call for the COs, they are working with no pay while the AMOs are being paid much more and don't see all the patients as the clinical officers do... if you want people to work you should give them extra money.'

Underlying discussions of salary was the implication this had on social status. Low salaries, especially compared to higher level clinical cadres, affected COs' perceived status of themselves in relation to other staff and to community members with different jobs and higher salaries.

Joseph, CO at HII: *As a CO, though I like to treat patients, yes. I also need money. The money and the extra privileges that those doctors get is somehow more than COs.*

CC: *What is better for the MDs? What privileges?*

Joseph: *More salary.. a lot of privileges.. there are a lot of projects. There are more opportunities as an MD. As a CO you must settle.*

CC: *So how can life be improved for the COs?*

Joseph: *This is a profession. If you are an engineer they get the money. I am a professional so I should get something for it for a better standard of life. COs are the lowest of the clinicians, now that these assistant clinical officers are dying out. We should have more money and more respect.*

Silas: (in FGD) *'The other thing I was thinking about is financial status of the medical personnel. Like an accountant who only has a diploma, you can find that he has a higher salary than what you have. What you have is one eighth of the salary of an accountant. So that can be a factor that pressurises somebody of thinking of further studies or leaving this profession...'*

As well as financial remuneration conferring respect on clinicians, and the status of vocational work for some, participants expected respect and recognition in their working environment if they were to be motivated (to achieve organisational goals). Lack of respect for clinicians, and particularly clinical officers, was a clear demotivating factor in the social working environment of participants and was even admitted to result in poorer quality of patient care. The differential between COs and AMOs was central to discussions about this during both the in-depth interviews and the focus group.

David: (in FGD) *'People do not respect each other sometimes because of low ranks ...the gap between the AMOs and the COs is what drives somebody who was formerly interested to be a clinician...not to enjoy being a clinician'*

Paul: (in IDI) *'The AMO and MDs, they don't spend much time with the patients, you must have seen it. They only come sometimes, when they are called. That is a problem. That is the cause that people die. Sometimes the patients come and get good treatment but sometimes the AMOs don't pass the ward to see the patient, even when the clinician writes in the notes for the doctor to see them, they don't go to see the patients.'*

Hawa: (in FGD) *'I'd like to add something, of course in Tanzania, to be a clinical officer, it's like someone who is not respected, in the minds of Tanzanians. A clinical officer is not respected as MD or a pharmacist, compared to other countries outside of Tanzania – let's say Zimbabwe or other countries – a clinician is highly respected. But in the mind of a Tanzanian, a clinician is a very poor person, that its built even in the government system as you see that: they are*

the ones who stay in the villages and the lives of clinicians are not built such as to be respected, that's why many people are not staying as clinicians until retirement'

Silas: We look like an outcast

CC: Really?

Silas: Sure.

In addition there was clear dissatisfaction that certain COs acted as 'specialists' within the hospitals, apparently selected through good relationships with the hospital administration and, as with AMOs, often perceived as having a lighter workload than clinicians on routine duties whilst gaining additional benefits of training workshops with *per diems*. This statement demonstrates the impact of this on the respondent's morale:

David: 'As a clinician I should know about all the diseases but I am not knowing anything about TB and Leprosy, so if I see a patient who has it, even if I take a nice history I can still just write "For TB" and not do it properly. I will be thinking that it doesn't matter to me because it is for those people who are selected to work with these patients. Whereas if I was rotating onto that position next time I might be more involved and make sure of any patients with complications. But I am demoralised.'

In addition to these factors of salary, status, organisational and social working environment, the physical constraints of their working environment were also briefly discussed.

Each of the themes identified as important to clinicians during the qualitative study were included in the instrument to measure motivation, and phrases used by participants were used where possible to increase consistency of interpretation between respondents and researchers.

Survey instrument

Thirty-nine of the 62 items were eliminated from the instrument during item reduction. Of the remaining items most were derived from the items adapted from Penn-Kekana et al.'s (2005) study. Factor analysis of these remaining 23 items confirmed the two-factor model (internal and environmental), which accounted for 80% of the variance. The majority of variables fell on the two factors as predicted but three variables unexpectedly loaded on the other factor; this may be due to misallocation of the statements in the instrument design, or a different interpretation of

the statement by participants for example the statement ‘I cannot complete all of the work I am expected to do each day’ was designed to measure the environmental domain but weighted on the internal motivation domain at analysis. Table 2 shows the factors, item statements and item loadings. Cronbach’s alpha was 0.88. Content validity was supported by qualitative analysis of feedback from participants. The two factors confirmed to underlie the survey items are termed ‘internal motivation’, encompassing personal values such as job vocation, and ‘environmental motivation’, encompassing attitudes towards working environment such as workload. Amongst the 150 participants who had completed sufficient items, mean scores were 51.2% (std. dev. 28.8) for internal motivation and 52.5% (std. dev. 26.2) for environmental motivation.

Few demographic variables were statistically significantly associated with either factor at univariate analysis: neither internal nor environmental motivation scores were significantly associated with clinician sex, age, year of graduation, years worked at current hospital, number of workshops attended in the past 12 months, number of dependents or hospital type, Church- or government-run (data not shown). For the internal motivation factor, univariate analysis showed clinicians with higher qualifications did score 11.6% higher on average than CO/RMAs (F-test p-value 0.08), clinicians who had not completed secondary education scored 12% higher on average than those who had completed Form 4, equivalent of GCSE (p-value 0.08), and clinicians who earned a higher salary scored on average 9% higher (p-value 0.05) than those who reported to be in the salary bracket of less than 200,000tsh per month (~US\$180). The only variables associated with the environmental perceptions factor were the internal motivation score and whether the respondent reported performing extra duties at their hospital who scored on average 8% lower on the environmental motivation score (p=0.07). Older clinicians scored higher on both factors, though this was not statistically significant. The two motivation factors were associated with each other – a higher internal motivation score was associated with a higher environmental motivation score (Correlation between the two factors was 0.47). Variation between hospitals was not statistically significant for either motivation

factor, but was adjusted for in the confidence intervals around the estimates in the multivariate analysis.

Multivariate regression analysis, including variables significant in univariate analysis and adjusting for clustering at the hospital level, found that internal motivation was higher amongst clinicians in the higher salary bracket but no co-variables other than the environmental motivation score remained statistically significant (Model 1, Table 3). The weak associations between higher internal motivation scores and higher qualification and lower school education level may have been confounded by their associations with age, but either we did not have the power to detect this in a multivariate model or the situation was more complex, with other non-demographic factors having a stronger influence over motivation scores. We found that salary modified the effect of the internal motivation score: in addition to its association with environmental motivation score found in the lower salary bracket, it was associated with two further variables in the upper salary bracket, presented as Model 2 in Table 3. Internal motivation scores of clinicians with salaries in the higher bracket increased by 14% ($p=0.04$) if the clinician was an AMO rather than CO, and increased by 14% ($p=0.03$) if the clinician received salary enhancements to his salary as well as being positively associated with the environmental motivation score ($p=0.001$). Environmental motivation scores were only statistically significantly associated with the internal motivation factor ($p<0.001$) and performing extra duties ($p=0.06$) at multivariate analysis (Model 3, Table 3).

We were able to detect magnitudes of effect as small as 8% but may have had insufficient power to detect smaller effects or the simultaneous effects of multiple variables. It is also likely that other potentially unmeasurable variables played a role in determining motivation scores given that the final models explained about a quarter of the total variance in the data (R^2 provided in Table 3).

Discussion

This study explored factors associated with the work motivation of non-physician clinicians in Tanzania. Results of both the qualitative and quantitative studies show the importance of salary to the motivation of clinical officers and assistant medical officers. Our findings suggest that non-financial factors are also important but that satisfaction with salary level may be a prerequisite for any intervention to change motivation with non-financial incentives.

The role of salary in worker motivation has been debated. Some researchers have argued that non-financial motivators such as ‘a sense of achievement’ and ‘recognition’ are more important than salary in low-income country settings (Alihonou, Soude, & Hounye, 1998; Mathauer & Imhoff, 2006; Stilwell, 2001). However, others point out that in environments where salaries are very low, low motivation is to be expected (Ferrinho, Van Lerberghe, Fronteira, Hipolito, & Biscaia, 2004) and financial incentive schemes have had some success in improving healthworker motivation and performance in low-income country settings (Biai, Rodrigues, Gomes, Ribeiro, Sodemann, Alves et al., 2007; Mliga, 2003; Rodrigues, 1989). Herzberg categorised salary as a ‘dissatisfier’ rather than a ‘satisfier’ (Herzberg, Mausner, & Snyderman, 1959), arguing that low salaries have the potential to demotivate workers but that salary in itself does not motivate workers. Qualitative findings from Viet Nam are consistent with this theory, classifying salary as a dissatisfier (Dieleman, Cuong, Anh, & Martineau, 2003) although results from a study in Mali classed salary as an important motivating factor (Dieleman, Toonen, Toure, & Martineau, 2006). The proposition that salary requirements need to be satisfied before healthworkers can be motivated by other factors is critically important. Research in Cambodia found that government salaries “were considered so unfair that it blocked discussions about work ethics, motivation and the provision of good quality care” (Soeters & Griffiths, 2003)(p76). In settings where salaries are generally low, and may be irregularly paid (World Health Organisation, 2006), remuneration for work is arguably an essential precursor for motivation. There is also evidence that increasing salary reduces moonlighting and also

embezzlement within health care institutions (Barr, Lindelow, & Serneels, 2004), suggesting that once financial needs are met, motivation may become more aligned with organisational goals. If this hypothesis were true, we would expect to find that the motivation of clinicians with higher salaries responded to non-salary influences more than clinicians with lower salaries. Results from our survey go some way towards supporting this hypothesis: whilst none of our work history or workplace variables were associated with internal motivation for clinicians with low salaries, motivation scores of clinicians in the higher salary bracket were associated with their qualification and with receipt of salary enhancement payments from their workplace. Both findings from the qualitative and quantitative part of this study, suggest that salary requirements must be satisfied - supporting the decision by Tanzania's Ministry of Health to accelerate increases in the salaries of its clinicians. However, they also indicate that this is only the first step towards increasing the motivation of healthworkers.

The working environment, including the social, organisational, physical and broader political context of work, was of clear importance to clinicians in the qualitative study, highlighting the importance of improved management of staff and resources. We did not find a significant difference in motivation levels between the 13 hospitals; many of the problems described by respondents were consistent between different hospital settings. We also only found weak or non-significant associations between environmental scores and demographic and work history variables, suggesting that any variation between individuals may result from more complex interactions with the working environment than can be captured with these variables, and pointing to the importance of qualitative studies of work motivation. We did find that those reporting extra duties in the survey scored lower on the environmental motivation factor, reflecting problems cited by clinicians of expectations to work outside of their scheduled hours for no extra pay when previously they had received overtime pay. This brings our discussion back to financial influences on motivation, although in this case it may be the method and expectation of payment that is at issue. Our results mirror findings in Ghana where an additional duty hours allowance which had been initially successful in reducing demotivation

became unsustainable, leading to resentment amongst those who had begun to rely on it (Ruwoldt, Perry, Yumkella, & Sagoe, 2007). Financial incentives therefore need to be clear and to work consistently on a local organisational level and as complex incentive structures tend to be less successful (Chaix-Couturier, Durand-Zaleski, Jolly, & Durieux, 2000), key to motivation is ensuring that workers understand the relationship between what is expected from them, how this will be monitored and how this will be rewarded (Chernichovsky & Bayulken, 1995; Giacomini, Hurley, Lomas, Bhatia, & L., 1996). On a broader level, caution must be taken in considering long-term commitments of incentive payments, the effect on intrinsic healthworker motivation (Berwick, 1995) and on the entire health and public service system (Adams & Hicks, 2000).

Underlying the discussions in our study of financial and non-financial motivators was the key issue of social status: that the recognition conferred from a good salary would accrue respect from colleagues and the lay community including patients, and in turn respect from these actors in the clinician's working environment would confer status on the clinician. The reality of pay perceived as too low for the job type and difficulties in the work environment including poor relationships with different clinical cadres and with patients meant that clinicians did not feel respected and were not keen to identify themselves with their non-physician cadre role. The majority wanted to move on into a higher cadre or a different sector, with younger clinical officers particularly seeing their role as temporary. Discussion with clinical officers when providing feedback of this study suggested that if the role of clinical officer held a higher social status and accrued more respect then COs might be more keen to identify themselves with the role and to remain within it. Our finding that COs often did not have family in the district and had only spent a median of four years in post (shorter than nurses in the same hospitals, (Reyburn, Mwakasungula, Chonya et al., 2008)) suggests they are a mobile, career oriented group and yet are treated as 'assistants' within the medical hierarchy, and do not have professional status. The desire for a career path to move up clinical cadres has also been reported in Kenyan hospitals (English, Esamai, Wasunna et al., 2004). In line with our findings,

a study of the effect of decentralisation on healthworkers in Uganda identified respect for professional abilities and the need for a certain level of income to maintain the living standard of the middle class as major concerns to healthworkers, with income level affecting professional identity and vice versa (Kyaddondo & Whyte, 2003). The reluctance to align one's goals with those of one's cadre as a group is likely to be particularly pertinent for NPC cadres who lack a professional body with a set of standards and communal goals as do medical doctors, nurses or other health professions. The tangible marks of status, such as association with a professional body, self-respect accrued from respect in the social and organisational working environment, and recognition derived from a salary comparable to other professions were all uncertain for clinical officers in this study. And yet this cadre is the most important in the delivery of diagnostic, prescribing and minor-surgery services in Tanzania and many other African countries (Mullan & Frehywot, 2007).

Given the central importance of social status in the motivation of clinicians in our study, and that in the case of physicians this is often aligned with professional status, we suggest that the establishment of clinical officers as a professional body could improve the perceived status of clinical officers in the eyes of themselves, their colleagues of other cadres, their managers and the public and increase their motivation to perform in line with organisational goals and to continue to work as clinical officers. This is reflected in our conceptual framework for galvanising change in the motivation of NPCs based on our findings (Figure 3). In considering future health systems in low-income countries, Dussault (2008) suggests self-regulation of practice through professional organisations to improve standards of practice in low-income countries. Professions, he argues, should undertake a 'social contract', with society, committing to 'ensuring the quality of the services provided by their members and to putting the interests of clients above their own' in return for the privileges of practice. In the case of NPCs, the establishment of such a professional organisation could serve to benefit all: improving motivation and job satisfaction, improving performance, and establishing standards and a cohort of clinicians able to foresee their roles within the profession into the future. An

important barrier to establishing professional bodies for NPCs is the long-standing ambition of many African countries to phase them out (Dovlo, 2004; Jensen, 1967) while simultaneously the WHO (2008) is encouraging an expansion of their numbers and responsibilities to cope with the manpower crisis. This apparent contradiction between ambition and reality needs to be managed carefully if a coherent human resource strategy, in which healthworkers can establish careers, is to be created.

The deployment of qualitative and quantitative methods enabled us to identify qualitative determinants of motivation affecting participants in general as well as quantitative determinants affecting variation in motivation level between participants. The mixed-method approach enabled the generalisation of the finding that salary was important to a wider sample of clinicians whilst gaining a deeper understanding of the reasons for the importance of salary and other factors difficult to measure quantitatively. The items of the measurement instrument that were found to be valid for inclusion in the final version of the questionnaire were mostly from Penn-Kekana's (2005) South African study, with our specifically tailored items not consistently filled, suggesting that the existing South African tool may be both generalisable and sufficient for measurement of healthworker motivation and that our additional items could have benefited from more intensive piloting. Further research is needed to validate existing tools in different contexts.

We identified financial and non-financial influences on clinician work motivation in this setting, in line with the findings of previous researchers. Non-physician clinicians are rarely studied as a group, in spite of their importance of health service delivery, and we conceptualised their social status as underlying demotivation about salaries and social and organisational aspects of their working environment. Incentives to motivate healthworkers should therefore consider the potential impact of strategies on the social status of clinicians, dependent upon salary and workplace and lay community respect. We believe the establishment of professional bodies of non-physician clinicians may provide a channel through which to

provide these workers with appropriate incentives to increase their motivation to perform to the best of their ability.

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Figure 1. A conceptual framework of influences on healthworker motivation, after Franco et al. (2002)

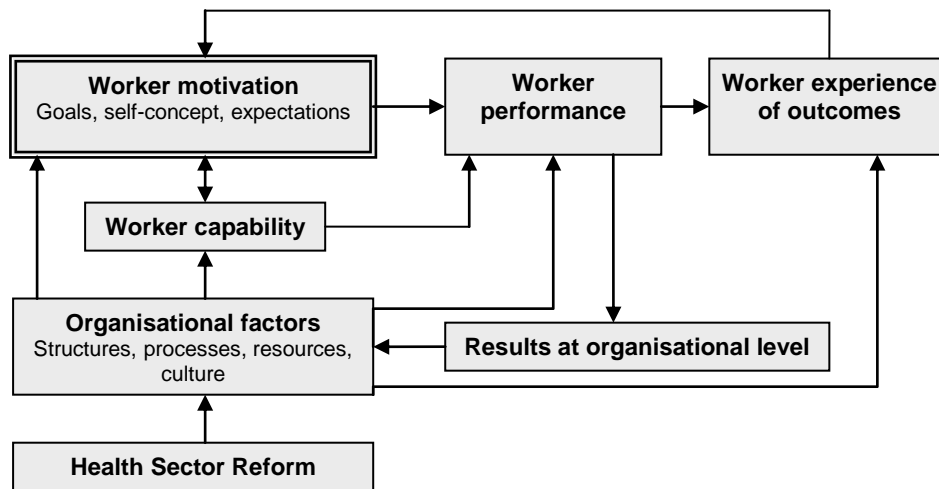


Figure 2. Conceptual framework for quantitative measurement of motivation

Legend: Adapted from Franco et al. (2002), Bennett et al. (2001) and Penn-Kekana et al. (2005).

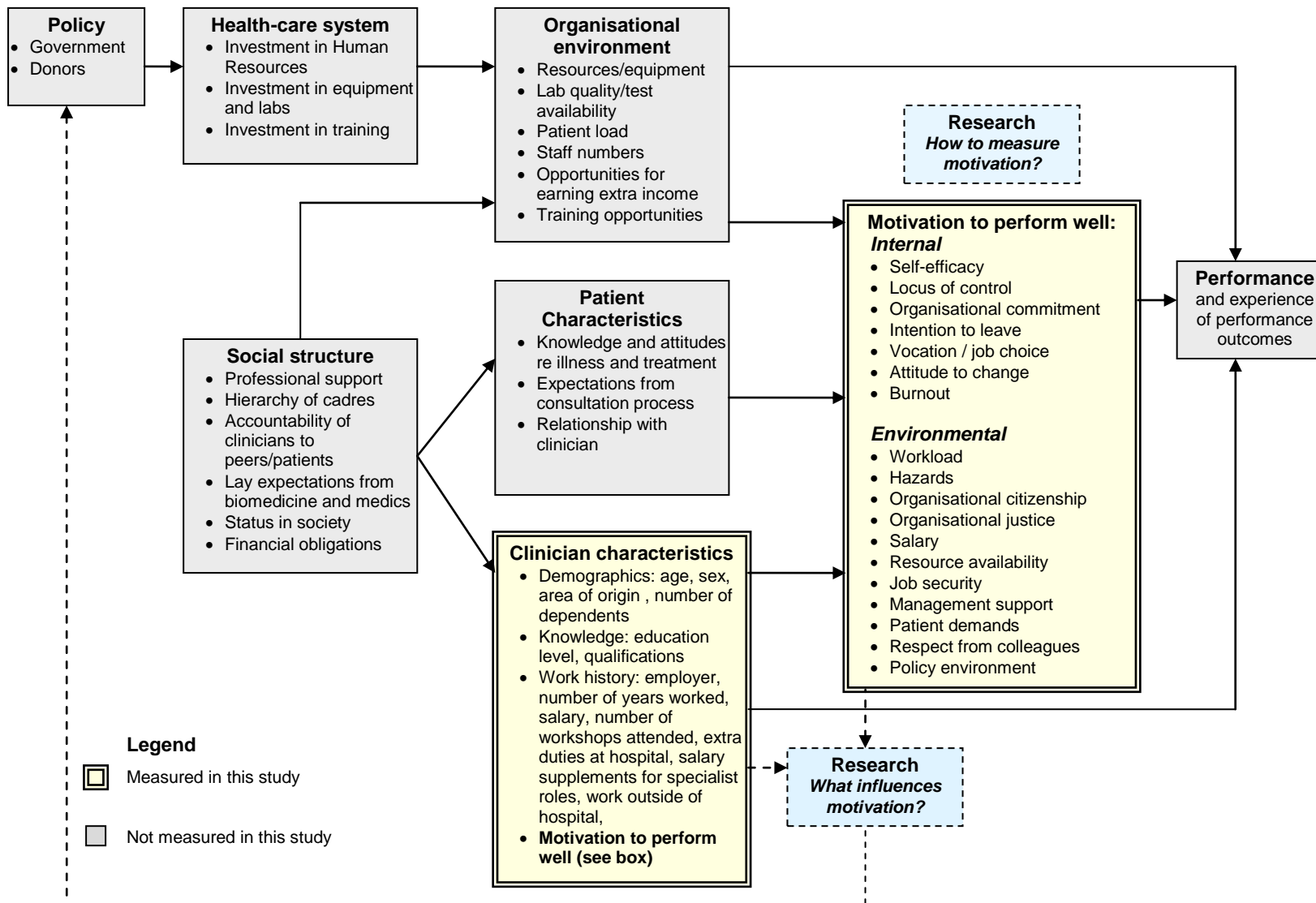
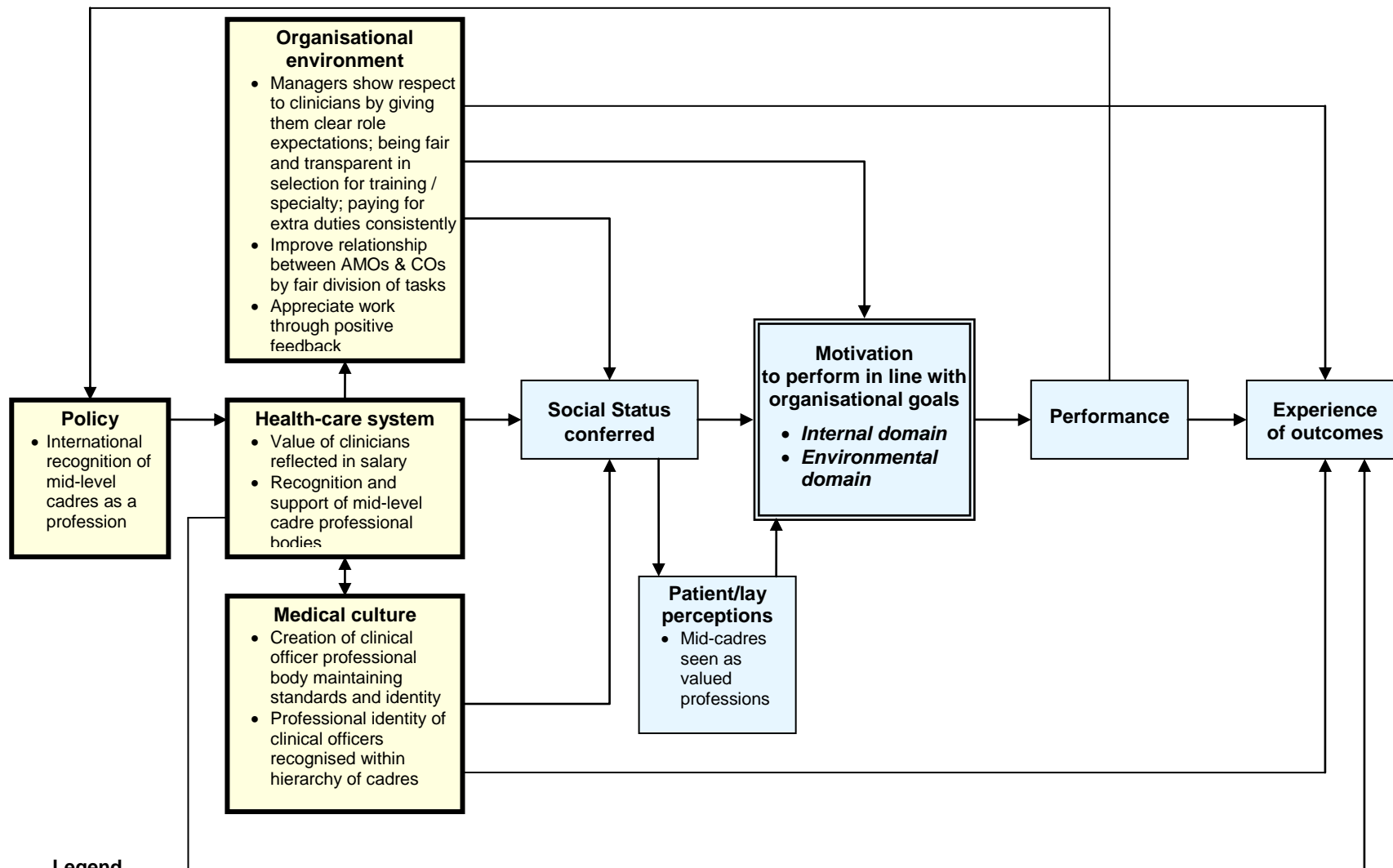


Figure 3. Conceptual framework for improving the motivation of clinical officers



Legend

▣ Areas to activate change

□ Areas predicted to change

Table 1 Survey study sample, 177 clinicians from 13 hospitals in Kilimanjaro and Tanga regions.

N hospitals co-run by the government via the district council	9
N hospitals co-run by the church and the district	4
Mean number participants per hospital (range)	14 (7 – 22)
N female	68 (39%)
Mean age (range)	41 (23-59)years
N Assistant Medical Officer (AMO) or Medical Doctor (MD)	27 (15%)
N Clinical Officer (CO)	150 (85%)
Highest level of school education	
Standard 7 (primary school)	10 (6%)
Form 4 (GCSE equivalent)	102 (64%)
Form 6 (A-level equivalent)	62 (36%)
Median year of graduation (range)	1998 (1973-2007)
Median number of years worked at current hospital (range)	4 (1mth-37yrs)
Reported having extra duties at hospital (often unpaid)	78 (44%)
Median number seminars attended in past year (range)	2 (0 – 11)
Salary from hospital job last month >200,000tsh ^a	93 (53%)
Reported receiving salary enhancements from within hospital job	30 (17%)
Earned extra money outside hospital	42 (24%)
Percentage income estimated from outside hospital job	
1-10%	8%
10+%	20%
Reported having family living in district surrounding hospital	35 (20%)
Reported being principal provider of financial support for immediate family	122 (69%)
Median dependants (range)	6 (0-32)

^aApproximately \$180/month

Table 2. Factor structure showing item weighting on each of two factors of the questionnaire (n=150 respondents)

Domain	Item statement	Item loadings ^a		
		Median response ^b	Internal motivation factor	Environmental motivation factor
Job satisfaction	❖ Overall I am very satisfied with my job.	4	0.437	
	Motivation			
	❖ These days, I don't feel motivated to work as hard as I could. ^c	2	0.509	
	❖ I only do this job so that I get paid at the end of the month. ^c	2	0.670	
Organisational commitment	❖ I am proud to be working for this hospital.	4	0.461	
	❖ I feel very little commitment to this hospital. ^c	2	0.591	
Intention to leave	❖ I intend to leave this hospital. ^c	2	0.524	
Burnout	❖ I feel emotionally drained at the end of every day. ^c	4	0.483	
	❖ When I get up in the morning I dread having to face another day at work. ^c	2	0.693	
Vocation / job choice	❖ I would recommend to my children that they become clinical officers.	3	0.399	
	❖ I wish that I had chosen a different occupation from being a clinical officer. ^c	4	0.679	
Job security	▪ I am afraid that I may not be able to stay in my current job in the future. ^{c,d}	2	0.710	
Workload	▪ I cannot complete all of the work I am expected to do each day. ^{c,d}	2	0.496	
Organisational citizenship	❖ The doctors and nurses work well together in this hospital.	4		0.712
	❖ There is too much gossip in this hospital. ^c	2		0.604
Organisational justice	❖ The clinical officers who are best at their job are the ones who get promoted.	2		0.527
Salary	➤ High achievement on the job is reflected in our pay.	2		0.419
	➤ The income I receive is a fair reflection of my skills, knowledge and training.	2		0.475
Resource availability	➤ This hospital provides everything I need to do my job effectively.	2		0.593
Management support	❖ Suggestions made by clinical officers on how to improve their work are usually ignored by hospital management. ^c	3		0.734
	❖ Hospital management communicates well with clinical officers in this hospital.	4		0.771
Policy environment	❖ I like how this hospital treats its employees.	3		0.868
	❖ We are well informed about policy changes affecting our work.	3		0.438
Locus of control	➤ I feel that at work things are going the way I would like them to. ^d	2		0.598

Statement key:

❖ Adapted from Penn-Kekana et al. (2005)

➤ Adapted from Bennett et al. (2001)

▪ Created for this questionnaire based on qualitative analysis

Legend:

^aShowing factors loading >0.40 after promax (oblique) rotation.

^bResponse scale 1 to 5, strongly agree to strongly disagree

^cItem was reverse coded when included in the aggregate score

^dItem was designed within the domain of the other factor, but at analysis weighted onto this factor

Table 3. Multivariable associations between demographic and work history variables and clinician scores on internal and environmental factors of the survey instrument.

	β coefficient (95% CI)	p-value	R ²
Model 1. Variables independently associated with internal motivation (n=150)			
Environmental motivation score	51.0 (33.8, 68.1)	<0.001	
Salary >200,000tsh ^a	9.4 (0, 18.9)	0.05	0.24
Model 2. Variables independently associated with internal motivation, upper salary bracket only (n=76)			
Environmental motivation score	43.8 (22.9, 64.8)	0.001	
Assistant Medical Officer (higher qualification than Clinical Officer)	14.0 (0.1, 26.4)	0.04	
Salary enhancements received	14.4 (2.0, 26.7)	0.03	0.24
Model 3. Variables independently associated with environmental motivation (n=148)			
Internal motivation score	42.2 (24.2, 60.3)	<0.001	
Extra duties ^b	-8.1 (-16.4, -0.2)	0.06	0.27

^a Approximately \$180/month

^bMissing data for two clinicians