Major Applied
Research 5,
Technical Paper 2

The Development of Tools to Measure the Determinants and Consequences of Health Worker Motivation in Developing Countries

February 2001

Prepared by:

Sara Bennett, Ph.D.
Abt Associates Inc.

Lynne Miller Franco, Ph.D.
University Research Co., LLC

Ruth Kanfer, Ph.D.
Consultant
University Research Co., LLC

Patrick Stubblebine, Ph.D.
Consultant
University Research Co., LLC

Partnerships
for Health
Reform

PHR

Partnerships
for Health
Reform

PHR

Mission

   The Partnerships for Health Reform (PHR) Project seeks to improve people's health in low- and middle-income countries by supporting health sector reforms that ensure equitable access to efficient, sustainable, quality health care services. In partnership with local stakeholders, PHR promotes an integrated approach to health reform and builds capacity in the following key areas:

   better informed and more participatory policy processes in health sector reform;

   more equitable and sustainable health financing systems;

   improved incentives within health systems to encourage agents to use and deliver efficient and quality health services; and

   enhanced organization and management of health care systems and institutions to support specific health sector reforms.

   PHR advances knowledge and methodologies to develop, implement, and monitor health reforms and their impact, and promotes the exchange of information on critical health reform issues.

December 2000

For additional copies of this report, contact the PHR Resource Center at PHR-InfoCenter@abtassoc.com or visit our website at www.phrproject.com.

  Contract No.:   HRN-C-00-95-00024
  Project No.:   936-5974.13

  Submitted to: Karen Cavenaugh, COTR
           Policy and Sector Reform Division
           Office of Health and Nutrition
           Center for Population, Health and Nutrition
           Bureau for Global Programs, Field Support and Research
           United States Agency for International Development

Abstract

Problems related to health worker motivation are remarkably pervasive, but to-date little attention has been paid to them in developing and transition countries. Basic tools to measure the determinants and consequences of motivation have not been adapted to contexts outside the industrialized world. This paper assesses the feasibility of transferring psychometric tools, typically used in industrialized countries to measure motivational processes, to other contexts. The paper draws upon two field studies conducted in two hospitals in the Republic of Georgia and two hospitals in the Hashemite Kingdom of Jordan. The studies started by using more qualitative techniques and progressed to the use of entirely quantitative survey instruments applied to a relatively large sample of workers.

A variety of approaches were used to assess the reliability and validity of the scales developed. It is concluded that the scales of motivational determinants, despite some minor problems, worked well in both the country settings. The scales measuring motivational outcomes (including affective motivation, cognitive motivation and worker behavior/performance) worked less well, particularly in Georgia. The reasons why these scales worked more or less well are the subject of the report. Given the growing interest in issues of health worker motivation, further research on this subject is required. Priorities for such research are presented.

Table of Contents

List of Tables

List of Figures

Acronyms

MOH	Ministry of Health
PHR	Partnerships for Health Reform

Foreword

Part of the mission of the Partnerships in Health Reform Project (PHR) is to advance "knowledge and methodologies to develop, implement, and monitor health reforms and their impact." This goal is addressed not only through PHR's technical assistance work but also through its Applied Research program, designed to complement and support technical assistance activities. The program comprises Major Applied Research studies and Small Applied Research grants.

The Major Applied Research topics that PHR is pursuing are those in which there is substantial interest on the part of policymakers, but only limited hard empirical evidence to guide policymakers and policy implementors. Currently researchers are investigating six main areas:

> Analysis of the process of health financing reform

> The impact of alternative provider payment systems

> Expanded coverage of priority services through the private sector

> Equity of health sector revenue generation and allocation patterns

> Impact of health sector reform on public sector health worker motivation

> Decentralization: local level priority setting and allocation

Each Major Applied Research Area yields working papers and technical papers. Working papers reflect the first phase of the research process. The papers are varied; they include literature reviews, conceptual papers, single country-case studies, and document reviews. None of the papers is a polished final product; rather, they are intended to further the research process—shedding further light on what seemed to be a promising avenue for research or exploring the literature around a particular issue. While they are written primarily to help guide the research team, they are also likely to be of interest to other researchers, or policymakers interested in particular issues or countries.

Ultimately, the working papers will contribute to more final and thorough pieces of research work, such as multi-country studies and reports presenting methodological developments or policy relevant conclusions. These more polished pieces will be published as technical papers.

All reports will be disseminated by the PHR Resource Center and via the PHR website.

Sara Bennett, Ph.D.
Director, Applied Research Program
Partnerships for Health Reform

Acknowledgments

This paper, and its companion report synthesizing results from the two study countries (Franco et al. 2001) reflect the culmination of a number of workshops, studies and reports. Consequently we owe considerable debts to many people.

First we would like to thank the many individuals in the study countries who contributed to the research in some way. In Jordan, Dr. Lonna Milburn and Dr. Reem Qarrain, played key roles in conducting the studies. Furthermore the study could not have been implemented in Jordan without the efforts of the PHR Scholars, their mentors, and Ministry of Health Research Participants. Our thanks to both of these groups. Hospital directors Dr. Zuheir Teif and Dr. Salim Malkawi are especially thanked for facilitating the work upon which this report is based, as are all the staff at their hospitals who generously gave of their time to support this effort.

In Georgia Dr. David Gzirishvili was co-principal investigator for the study. Ia Kutaladze and Ia Shekriladze the consultant psychologists to the project provided valuable advice throughout. We would also like to thank the Institute for Polling Management who conducted the fieldwork very efficiently. Particular thanks go to the directors and staff of the two study hospitals.

Professor Jim Buchan and Dr Barbara Stillwell from the World Health Organization gave valuable comments on earlier versions of this paper. We would also like to thank all the participants at the workshop on Health Sector Reform and Health Worker Motivation in Chevy Chase in 1998 where the seeds for this study were planted.

Executive Summary

Introduction

Worker motivation in the health care sector is an acute problem in many countries, and adversely affects the delivery of quality health care services. While policymakers are increasingly interested in addressing the issue of health worker motivation, there is very little information about what type of interventions are appropriate to improve health worker motivation. In industrialized countries psychological tools have frequently been applied to issues of worker motivation, but the same is not true of developing countries. Researchers in developing countries lack basic tools to measure the determinants and consequences of health worker motivation.

Aims and Objectives

The overall aim of this paper is to explore how feasible and appropriate it is to transfer the psychometric tools typically used in industrialized countries to investigate worker motivation in the health sectors of developing and transitional countries. Specific objectives are to:

> Explore the extent to which the psychological constructs commonly used in research on worker motivation in industrialized countries are relevant to health workers in developing countries;

> Consider the reliability and validity of specific scales measuring motivational determinants and motivational outcomes in two non-industrialized countries;

> Consider issues involved in developing hypotheses for research on health worker motivation in developing countries;

> Reflect upon the feasibility of adapting available methodological tools for more routine use in developing and transition countries;

> Set out parameters for further methodological development for research on health worker motivation.

Study Overview

The definition of motivation employed was "An individual's degree of willingness to exert and maintain an effort towards organizational goals". The study explored individual level determinants of health worker motivation including individual worker differences (such as perception of self-efficacy and expectations for the consequences of work behavior) and worker perceptions of their work context or organizational environment (such as their perception of resource availability and organizational culture). In terms of the consequences of worker motivation, the study explored impact on affective motivation (i.e., what workers feel/how satisfied they are), cognitive motivation (i.e., what workers think) and worker behavior or performance (i.e., whether workers are conscientious, timely, get along with each other etc.).

The research was composed of three different phases: moving from a largely qualitative contextual analysis to an increasingly quantitative approach. The third and final stage of the study represented the most sophisticated use of psychological scales in quantitative self-administered surveys that were applied to a large sample of health workers. The instruments were applied in two different hospitals in Jordan and two in Georgia. In each country one hospital was a teaching hospital and the other a more community oriented hospital.

Motivational Determinants

The constructs used to measure motivational determinants included worker expectations, values/work ethic, work-related personality, emotional personality, organizational culture, organizational characteristics and job characteristics. Within each of these constructs a range of different scales were used. Most of the scales drew upon existing published research, but were adapted to use in country. Reliability of the scales, as measured by Cronbach Alpha was high on the whole. Most problematic applications were scales developed specifically for this research which measured resource availability and bureaucratic efficiency. Principal components analysis supported most of the pre-defined scales.

Motivational Outcomes

Outcome measures encompassed work satisfaction, organizational commitment, cognitive motivation and a series of performance measures based upon workers' self-assessment and assessment by their supervisors. Cronbach Alpha scores for scales was generally high, though worker-assessed performance was rather lower than that for other scales.

Regression analysis was used to explore the impact of motivational determinants upon motivational outcomes and the impact of affective and cognitive outcome measures upon performance. Explanatory relationships were strongest for affective and cognitive motivational outcomes and weakest for the performance measures. In Georgia there was also found to be no significant correlation between self-assessed performance measures and supervisor-assessed performance measures

Conclusions regarding Usefulness of Constructs and Scales

Both the constructs and scales reflecting motivational determinants worked well in both Jordan and Georgia, although some more research is required to refine them further. The outcome scales used did not perform as well, and were particularly weak in the Georgian context. The primary problem appeared to be that the motivational constructs used for outcomes were not well adapted to the particular context.

The research reported here was complex in terms of the instruments used and the analysis conducted: this fact may have implications for further work in this area. It may be useful to develop a core instrument that is relatively straightforward to understand and apply, and more complex modules could be added for different groups of health workers. In order to simplify the overall study design however it is necessary to have a better understanding of which constructs and scales are universally applicable and which require greater adaptation between different countries. The replication of this study in different countries is necessary to draw conclusions.

Priorities for Further Work

Specific priorities for further work include:

> Qualitative research on motivational constructs particularly outcomes such as worker performance and worker satisfaction;

> Compilation of objective measures of worker performance which can be used to validate self-assessed and supervisor-assessed performance measures;

> Replication of studies in other contexts to enhance understanding of the universality of different motivational constructs;

> Studies that assess impact of alternative interventions to improve health worker motivation.

These items are complementary. Together they represent a broad program of work that requires coordination between different agencies engaged in field work. Through such an effort it may be possible to develop tools which could be relatively widely used to investigate problems related to health worker motivation. This would allow for proposed solutions to motivational issues, including monitoring the impact of interventions.

1. Introduction

Problems of low motivation among health workers are remarkably common across countries at different levels of development. Worker motivation in the health sector is particularly important, given the highly labor intensive nature of health care delivery (Franco et al. forthcoming). Motivational problems at work may be reflected in a variety of circumstances, but common manifestations include:

> > Lack of courtesy to patients (Gilson et al. 1994, Mutizwa-Mangiza 1998);

> > Failure to turn up at work on time and high levels of absenteeism (Mutizwa-Mangiza 1998);

> > Poor process quality such as failure to conduct proper patient examinations, failure to treat patients in a timely manner (Gilson et al. 1994).

These motivational problems among health staff not only negatively affect quality of care but have also been shown to reduce utilization of priority services (Haddad and Fournier 1995).

While increasing recognition is being given by policymakers and international organizations to the problems associated with poor health worker motivation, very limited and non-systematic understanding about the factors and consequences of health worker motivation exists. As a result policy tools tend to be somewhat simplistic, focusing in particular on financial levers which suggests that linking pay to performance or increasing pay so that it reaches a subsistence level is sufficient (World Health Organization 1994, Martinez and Martineau 1998).

There are a number of other applied questions regarding health worker motivation which need to be addressed, for example, how do decentralization processes affect health worker motivation, what types of feedback mechanism are most effective in improving health worker motivation, and how do alternative reward systems affect health worker motivation (Bennett and Franco 1998). However, in developing country contexts researchers lack both the basic tools to measure the determinants and consequences of worker motivation, and the hard data to support the use of motivational constructs commonly used in industrialized countries. While researchers in industrialized countries have frequently applied psychological tools to explore these issues in the health sector (e.g., Beaulieu et al. 1997, Kingma 1998, Morrison et al. 1997, Rantz et al. 1996, Tumulty et al. 1995), psychological dimensions remain largely unaddressed in the context of developing and transition countries.

This paper draws upon the experience of the authors in implementing studies of the determinants and consequences of health worker motivation in two hospitals in the Hashemite Kingdom of Jordan and two hospitals in the Republic of Georgia. The overall aim of the paper is to explore how feasible and appropriate it is to transfer the psychometric tools typically used in industrialized countries to investigate worker motivation to the health sectors of developing and transitional countries. This question is significant, as reliable tools are needed in order to move towards a more standardized approach to the assessment of motivation, and so that the more policy focused questions described above can be addressed.

Specific objectives of this paper are to:

> Explore the extent to which the psychological constructs commonly used in research on worker motivation in industrialized countries are relevant to health workers in developing countries;

> Consider the reliability and validity of specific scales measuring motivational determinants and motivational outcomes in two non-industrialized countries;

> Consider issues involved in developing hypotheses for research on health worker motivation in developing countries;

> Reflect upon the feasibility of adapting available methodological tools for more routine use in developing and transition countries;

> Set out needs for further methodological development for research on health worker motivation.

Although methodological issues were viewed from the outset to be an important component of the research, the country studies conducted did not have as their **primary** purpose the validation of scales for measuring for measuring motivational determinants and outcomes.

This paper does not present in any detail, findings from the two studies conducted. A synthesis of study findings can be found in (Franco et al. 2001). A series of Partnerships for Health Reform (PHR) papers (Franco et al. 2000a, Franco et al. 2000b, Bennett and Gzirishvili 2000a, Bennett et al. 2000b and Bennett et al. 2000c) contain detailed reports of each phase of the research in both of the study countries.

The next two sections of the paper provide further background about the study and then describe the approaches used in this paper to assessing the reliability and validity of the motivational constructs and scales. The central sections of the paper then focus upon assessing the two different types of constructs: motivational determinants and motivational outcomes, and hypothesis testing. Final sections of the paper reflect upon the feasibility of adapting these tools for more routine use and the needs for further methodological development.

2. Overview of the Studies Conducted

The definition of work motivation adopted for the studies is "An individual's degree of willingness to exert and maintain an effort towards organizational goals"[1]. A key issue in terms of researching motivation is that it is not possible to observe directly motivation itself as it is an internal psychological process. Instead researchers must focus upon the inputs into the motivational process (motivational determinants) and/or the outcomes of motivational processes which include both affective and cognitive outcomes (such as worker satisfaction) and worker behavior/performance (Kanfer 1999) .

The conceptual framework used by the study (see Figure 1) lays out motivational determinants operating at the individual level:

> Individual differences among workers: expectations for consequences of work behavior, perception of self-efficacy and goals; and

> Perceptions of the work context or organizational level: worker perceptions of resource availability, organizational processes, human resource management and organizational culture.

In addition, three types of consequences were explored: first, consequences in terms of worker affective motivation (or how workers feel), second, worker cognitive motivation (or what workers think), and third, worker behavior (timeliness, conscientiousness etc). Both affective motivation and cognitive motivation are intermediate outcomes in the sense that workers may feel satisfied with their job or appreciate the autonomy that their job allows, but this does not necessarily translate into high levels of performance. The researchers thought it very important to capture consequences that directly related to health systems performance. Ideally the study would have measured worker performance, that is the extent to which workers fulfill their job descriptions and match job expectations. However this was problematic because the study was covering such a diverse range of workers with very different types of jobs, and generally job descriptions were not well specified. Instead a generic measure of worker 'behavior' was used which addressed common work issues such as ability to get along with others, conscientiousness, timeliness, attendance etc.

---

[1] Further description of the nature of worker motivation as conceptualized in the studies can be found in Bennett and Franco (1999).

Figure 1. Internal Worker Determinants and Outcomes of Motivation
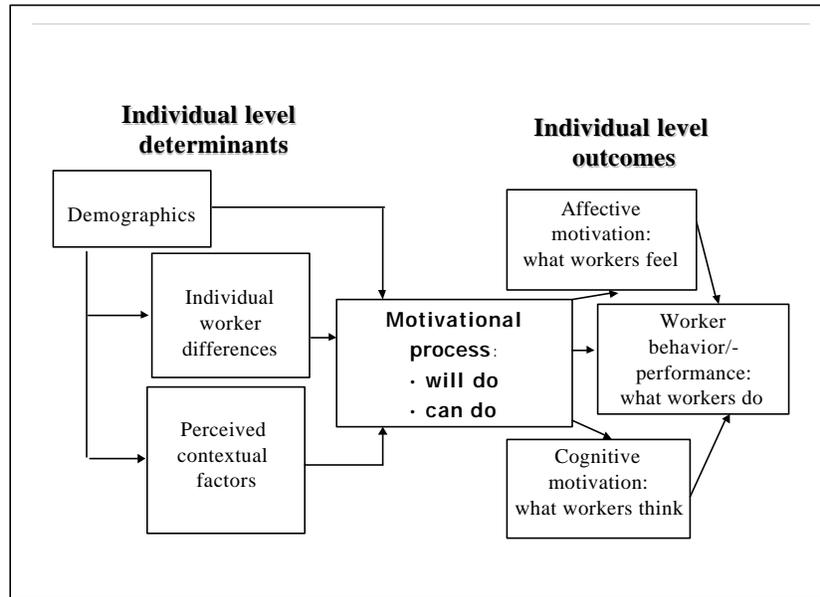
The country studies conducted had dual aims: first, to analyze the determinants and consequences of worker motivation and the relationship between these two sets of constructs, second, to contribute to methodological developments to facilitate future analysis of these issues. The study design reflects this dual purpose.

2.1   Study Design

In each country two hospitals were selected as study sites. These hospitals were not meant to be representative of all hospitals within the country but rather served as testing grounds for the instruments. In each country one of the hospitals selected was a more complex teaching hospital whereas the other hospital was a general hospital with closer links to a local community. Hence the hospitals illustrated part of the range of contexts within which motivation issues were a concern. Also hospital management in the study hospitals were keen to collaborate with the study.

Three phases of research were planned for each study site. These phases were designed so that the researchers could incrementally learn about the context within which they were working and use this information to fine tune later phases of data collection and analysis. The three phases were as follows:

1. **Contextual analysis:** recognizing that the determinants of worker motivation originate at many levels including the socio-cultural and environmental context, the context of the broader health care sector, the immediate organizational work context as well as individual levels. The first step was to undertake an analysis of these different levels. Building upon a conceptual framework previously developed by the authors (Bennett and Franco 1999) a checklist for the conceptual analysis was developed, which encompassed the different levels listed above and focused in particular on human resource management practices at the study facilities.

2. **The 360 degree assessment:** the second phase of study to questioned hospital staff about the major factors associated with worker motivation. Two key defining characteristics of this stage were that the questionnaires used combined both quantitative and qualitative survey techniques and that the questionnaire was adapted so that respondents reflected upon issues affecting the stakeholder groups of which they were members, both in terms of the type of worker (physician, nurse, etc.) and the level of respondent (manager, supervisor, worker). Hence the title, 360 degree assessment. The questionnaire covered (i) perception of hospital goals, (ii) attitudes towards hospital environment and culture, (iii) perception of characteristics of fellow workers, (iv) possible effects on performance of different work conditions, and (v) interventions to improve motivation. While the survey used items previously used in research on work motivation in the US, it did not use pre-defined scales. Additional items were added to reflect what was known about local conditions. Principal components analysis was used to develop composite scales from the individual items.

3. **The in-depth phase:** relied solely upon the use of quantitative structured surveys and was targeted only at workers (as opposed to managers). It used a battery of psychological scales compiled both from the literature and the 360 degree assessment to provide profiles of both determinants of motivation and outcomes of motivational processes. Assessment included work behavior and affective and cognitive outcomes. Scales were predefined in the instrument. In addition the supervisor of each respondent was identified and requested to complete a very brief form appraising the work behavior of the respondent. The items on this work behavior scale were identical to that used for workers themselves.

2.2   Data Collection and Analysis

Table 1 shows sample size and data collection approaches for each of the three phases of the study identified above. Sample size increased with each component of the study, reflecting the shift from qualitative to increasingly quantitative information. All instruments were piloted prior to implementation and fieldworkers appropriately trained. All respondents were assured of the anonymity of their responses.

While in Jordan accurate information on the number of staff employed by the hospitals was available from hospital management, this was not the case in Georgia. For the final stage of the study in which a census of all remaining staff was undertaken, staff lists were compiled from information provided by department heads.

In Georgia two obstacles were encountered during the fieldwork on the in-depth phase. First, some of the more abstract questions proved difficult for less educated respondents to answer, consequently hospital attendants (the group of hospital workers with least education) were excluded from the analysis[2]. Even so fieldworkers were sometimes called upon to explain certain questions to less educated respondents. Second, some supervisors were unwilling to complete forms appraising their staff. In Georgia there are currently very few companies that have any system of performance appraisal, and certainly no public organizations. Furthermore health sector staff were aware of the

---

[2] Management at the hospitals in Georgia estimated that there were 224 hospital attendants employed at the two hospitals, but in reality there were far fewer than this who worked on a routine basis. Management estimates for doctors and nurses employed at the hospital were 100-150 percent higher than the number of staff identified by researchers through talking to department heads.

need to reduce staffing at hospitals and felt that their own positions may be insecure. The combination of these factors probably contributed to reluctance on the part of supervisors to complete the forms.

In Jordan the study was conducted in conjunction with the Ministry of Health (MOH) and the management of the study hospitals and formed part of PHR's country activities. This not only facilitated data collection but also meant that findings from the study fed directly into decision-making processes.

Table 1. Data Collection Approaches

Phase of Study	Data Collection Method	Sampling Strategy	Final Sample Size	
			Georgia	**Jordan**
1. Contextual analysis	In-depth interviews conducted by country PIs in Georgia and research fellows in Jordan	Purposive sampling of key managers in hospitals (and in the MOH in Jordan)	12	n/a
2. 360 degree assessment	One-to-one interviews administered by trained interviewers	Stratified random sampling of different categories of worker	129*	125*
3. In-depth phase	Self-administered questionnaires, completed during group sessions with instrument introduced by trained fieldworkers	Census of all remaining hospital staff (excluding attendants) in Georgia. Stratified random sampling based upon professional categories in Jordan	473 N=437 for supervisors	510 N=511 for supervisors

* Patients were also included in the 360 degree assessment but they are excluded from this figure and from the results discussed here.

For phases 2 and 3 data were entered onto a computer database and analyzed using SPSS. Qualitative data collected during phase 2 was coded and also computerized for analysis.

3. Approaches to Assessing Reliability and Validity of Motivational Constructs and Scales

The quality of a measurement scale is usually judged by (a) its reliability (or its ability to reproduce an observation) and (b) its validity (or the ability of the scale to capture the underlying phenomenon) (Haddad et al. 1998). Reliability can be assessed in different ways: test-retest, parallel forms and internal consistency. The internal consistency of a scale is frequently measured (as it is here) through the use of the Cronbach alpha correlation coefficient which reflects the correlational relationship among scale items.

Validity is commonly broken down into three different aspects:

> Content validity or the representativeness of the scale: the extent to which the scale reflects all relevant facets of an issue;

> Criterion validity or the ability of a scale to be correlated with, or predict a criterion of interest;

> Construct validity refers to the degree to which a scale captures the underlying construct purportedly measured. Construct validity is normally inferred from all the logical arguments and empirical evidence available including, for example, confirmatory factor analysis to assess the extent to which scales produced by factor analysis are coherent with a priori groupings and the extent to which the scale produces anticipated differences in findings for key different groups.

During the course of the research all of these approaches to measuring reliability and validity were used in a more or less rigorous way. Table 2 summarizes the approaches used to assess scale quality.

Table 2. Approaches to Assessing Scale Quality

Approach	Application
Reliability	Internal reliability/consistency tests applied to all scales using Cronbach Alpha
Content validity	Review of all proposed scales prior to implementation of survey in each country by small group of local experts including academics, psychologists and MOH staff.
	Qualitative research during 360 degree assessment in Georgia on motivational determinants (but not consequences)
Criterion validity	Correlation analysis used in comparison of supervisor assessed and self-assessed performance scales
	Regression analysis used to assess (a) impact of motivational determinants upon outcomes and (b) impact of affective and cognitive motivation on performance measures
Construct validity	Principal components analysis to identify whether factors loaded on pre-specified scales

The material presented here focuses upon the scales used in the third and final phase of the study i.e., the in-depth assessment because this reflects the most refined use of scales, and encompasses any high quality scales defined during the 360 degree assessment. However this report draws upon previous phases of the study, to the extent that they provide evidence relating to the validity or reliability of the scales finally developed, and to the extent to which they were useful in themselves in casting light on appropriate methods to study motivational determinants and outcomes.

4. Measuring Motivational Determinants

4.1 Overview of Motivational Determinant Scales and Constructs

The conceptual framework for the study distinguished two types of motivational determinants: individual differences (including scales that would reflect how societal values are incorporated into individual values) and differences in perception of the context (particularly the organizational context). Table 3 lists the main motivational constructs used in the analysis by these sub-headings, and lists under each of the country columns the specific scales developed to measure these constructs. The final column of the table identifies the sources for the scales. A full item list (of those items included in the analysis) is included in Annex A.

Table 3. Constructs and Scales for Measuring Motivational Determinants

Motivational Constructs	Jordan	Georgia	Source
INDIVIDUAL DIFFERENCES			
Expectations	Personal/social consequences (shame)	Personal/social consequences (shame)	Locally developed
Values/work ethic	Work as a virtue Values/work orientation Effort orientation	Work as a means to self-respect Social respect through work	Jordan scales, selected items from Abu Saad's (1998) Islamic work ethic scale Georgia scales locally developed by consultant psychologists
Work-related personality	Motivational control Self-efficacy Desire for achievement	Motivational control Self-efficacy Desire for achievement	Kanfer & Ackermann (2000) motivational skills Brett and Yogev's generalized self-efficacy (1998) Helmreich and Spence's work achievement scale (1978)
Emotional personality	Emotional control	Emotional control	Kanfer & Ackermann (2000)
Individual differences	Locus control Job preferences	Locus of control Job preferences Attitudes to change	Spector 1988 Warr et al. 1979 Attitudes to change based on Judge et al. 1999

PERCEIVED CONTEXTUAL DIFFERENCES			
Organizational culture	Pride	Pride	Developed from 360 degree assessment: minor differences between countries
	Organizational citizenship	Organizational citizenship	Podsakoff et al. 1997
Organizational characteristics	Management openness	Management support	Georgia developed from 360 degree analysis & Lynch et al. 1999.
	Resource availability	Resource availailability	Locally developed
	Bureaucratic efficiency	Bureaucratic efficiency	Locally developed
		Salary/Income	Locally developed
Job characteristics*	Motivational properties of job job skill variety job autonomy job feedback job task identify	Motivational properties of job social interaction on job intrinsic interest job feedback job task identity	Developed from Edwards et al. 1999 and Sims et al. 1976

* The Edwards et al. scale "Motivational Properties of Job" is a composite scale which includes feedback, social interaction, job clarity and challenge, advancement, autonomy, pay and security. The more specific scales come from Sims et al. "Job Characteristics Inventory": (i.e., job skill variety, job autonomy, job feedback and job task identity in Jordan, and social interaction on job, intrinsic interest, job feedback and task identify in Georgia).

Most of the scales used draw heavily upon existing published research. However there were some constructs which were believed to be important in the study locations, but for which there were no existing scales. For these constructs, scales had to be specially developed. It was more frequently necessary to do this for perceived contextual differences as there were considerable differences between the context of industrialized countries where work such as this is usually carried out and the study sites.

In particular the contextual analyses in both countries identified issues regarding the lack of complementary resources (such as drugs and medical supplies) and complex bureaucratic procedures as being potential obstacles to effective work by health workers and hence factors which might adversely affect motivation. These problems were confirmed through qualitative responses to the 360 degree assessment. For example the primary reason given as to why respondents in Georgia experienced frustration and disappointment at work was the lack of reagents and medical supplies. Furthermore in Georgia, the very low level and unreliable payment of salaries was perceived by respondents to be a very significant source of frustration and disappointment, and when asked which interventions would increase motivation most, respondents discussed interventions related either explicitly or implicitly to improved financial remuneration.

In many developing countries there is often significant status associated with being a physician or working in certain prestigious health care facilities. Questions in the 360 degree assessment showed that pride was a particularly important factor in motivation and accordingly a 'pride' scale was added to the in-depth phase of study.

It is commonly argued that many developing countries have less individualistic and more collectivist values (Kanungo and Medunca 1994). Consequently it was thought important to capture the social consequences of good or poor performance. In-depth interviews in Georgia reinforced this view: managers at hospitals specifically mentioned the importance of social shame as a means to enforce good behavior among staff. In the Arab world research has already been conducted on values culturally associated with work (Abu-Saad 1998), and these scales were adapted for this research. No similar studies could be found for the former Soviet Union. Hence scales were developed by Georgian consultant psychologists to the project who developed scales to reflect what they believed to be two dominant characteristics of Georgian work values – namely the role which work plays in establishing self-respect, and also the importance of work as a means to social acceptance.

The scales on management openness (Jordan) and management supportiveness (Georgia) were partly defined by questions successfully used and scales developed during the 360 degree assessment, but were also supplemented by other published research (Lynch et al. 1999). All the rest of the scales were drawn from published research, although some were adapted during the study process.

The local review committees composed of local health workers, psychologists and health system researchers, thought that few of the items in the established scales were completely irrelevant or inapplicable in the Georgian and Jordanian contexts. More common problems related to the language used in the original items and difficulties in translating items, as well as in the complexity of some of the concepts used. Prior to discussing the instruments with the local review committees the researchers simplified the language of many items and replaced slang (commonly used in American scales) with proper English. Even so some of the items proved difficult to translate. Because of the size of the overall instrument it was necessary to cut some items from some scales. Items cut were those which were thought by the local review committees and principal investigators to be least applicable in the study context.

Through this process of adapting the scales during survey design and based on principle components analysis, a number of differences emerged between the scales finally applied in Jordan and the scales finally applied in Georgia.

4.2   Reliability of Motivational Scales

Table 4 lists alpha statistics for all scales used in the comparative synthesis paper. Generally a Cronbach alpha of 0.70 or greater is considered to be acceptable, although alpha scores of 0.60 or greater might also be considered acceptable. The majority of the alpha scores are 0.60 or higher (only five out of 20 scales do not meet this cut-off in Jordan and four out of 21 in Georgia).

Table 4. Cronbach Alpha's for Scales Used in Analysis

Motivational Constructs	Jordan	Cronbach Alpha	Georgia	Cronbach Alpha
INDIVIDUAL DIFFERENCES				
Expectations	Personal/social consequences	0.72	Personal/social consequences	0.86
Values/work ethic	Work as a virtue	0.81	Work as a means to self-respect	0.71
	Values work orientation	0.70		
			Social respect through work	0.62
	Effort orientation	0.56		
Work-related personality	Motivational control	0.63	Motivational control	0.61
	Self-efficacy	0.66	Self-efficacy	0.58
	Desire for achievement	0.74	Desire for achievement	0.67
Emotional personality	Emotional control	0.71	Emotional control	0.58
Individual differences	Locus of control	0.61	Locus of control	0.61
	Job preferences	0.62	Job preferences	0.74
			Attitudes to change	0.64
PERCEIVED CONTEXTUAL DIFFERENCES				
Organizational culture	Pride	0.79	Pride	0.83
	Organizational citizenship	0.89	Organizational citizenship	0.77
Organizational characteristics	Management openness	0.42	Management support	0.77
			Resource availailability	0.60
	Resource availability	0.54	Bureaucratic efficiency	0.48
	Bureaucratic efficiency	0.31	Salary/Income	0.80
Job characteristics	Motivational properties of job	0.77	Motivational properties of job	0.80
			social interaction on job	0.42
	job skill variety	0.70	intrinsic interest	0.75
	job autonomy	0.67	job feedback	0.74
	job feedback	0.35	job task identity	0.61
	job task identify	0.61		

In both countries the scales reflecting organizational characteristics performed poorly; particularly scales on resource availability and bureaucratic efficiency. These scales were developed specifically for this analysis and the lack of previous testing is evident. The scales contained only three items each and probably insufficient time had been devoted to conceptualizing them. The specially developed scale on salary/income in Georgia was also very short and put together quite quickly but nonetheless had a high Cronbach alpha score.

Both the scales on organizational culture performed well in both countries, as did the large aggregate scale on motivational properties of the job. However when researchers tried to tested sub-

scales within the overall construct of motivational properties there was mixed success with only some scales (such as job skill variety in Jordan and intrinsic job interest and job feedback in Georgia) having high alpha scores. The fact that several items were dropped from the Sims Job Characteristic index in order to prevent the survey instrument from becoming excessively long, may partially explain why alphas were so low.

The scales responding to constructs on work related personality, emotional personality and individual differences were taken almost exclusively from the industrialized country literature. Although Alpha scores are not very high, they are on the whole acceptable.

4.3   Construct Validity of Determinants – Principal Components Analysis

Principal components analysis was used to assess the extent to which the pre-identified scales were supported by the data. It is not possible, given space constraints to present the full principal components analysis here. Table 5 shows the results of the principal components analysis conducted on the Georgian data for the constructs "organizational culture' and "organizational characteristics". While showing that the data, by and large, support the originally defined scales the analysis also highlights a number of problems.

Table 5. Results of Principal Components Analysis on Organizational Culture and Characteristics Scales

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
MANAGEMENT SUPPORTIVENESS						
Should a problem arise during work, it is usual for my supervisor to assist		0.462				
Rules at this hospital are fair		0.674				
This hospital gives me the possibility of independent decision-making		0.626				
Suggestions made by workers on how to improve work are usually ignored		0.337		0.339		0.414
This hospital really cares about my well-being		0.723				
This hospital is willing to help me when I need a special favour		0.631				
This hospital shows very little concern for me		0.350				
This hospital cares about my opinions		0.726				
PRIDE						
This hospital has a good reputation in the community			0.687			
It is a source of pride to get a job at this hospital		0.316	0.752			
The majority of workers are proud to work here			0.808			
Workers at this hospital pride themselves on providing good services	0.525		0.467			
ORGANIZATIONAL CITIZENSHIP						
My co-workers help others if they fall behind in their work	0.716					
My co-workers willingly share expertise and skills with other members of the unit	0.728					
My co-workers try to act like peacemakers when co-workers have disagreements	0.642					
My co-workers take steps to prevent problems with other co-workers	0.646					
My co-workers willingly give time to co-workers who have work-related problems	0.776					
My co-workers talk to co-workers before taking action that might affect them	0.572					0.318
My co-workers provide constructive suggestions about how the unit can improve its effectiveness	0.583					0.347
My co-workers attend and actively participate in team meetings	0.364	0.360			0.315	0.305
My co-workers find fault with what other co-workers are doing						-0.511

ADEQUACY OF REMUNERATION						
High achievement on the job is reflected in our pay				0.778		
My job offers adequate pay compared with similar jobs				0.759		
The income I receive is a fair reflection of my skills, knowledge and training				0.831		
The income I receive more than covers my basic needs such as food, transport and accommodation				0.697		
With this job I have no worries about how to support myself and my family				0.584		
RESOURCE AVAILABILITY						
This hospital provides everything I need to do my job effectively					0.511	
A fundamental reason I do not do my job properly is that I do not have the equipment, supplies and /or materials I need					0.565	
Lack of resources at this hospital hinders the delivery of quality care					0.740	
BUREAUCRATIC EFFICIENCY						
My work is rarely disrupted due to bureaucratic processes					-0.750	
There are few instructions that obstruct and delay work						0.586
I am often prevented from getting my work done effectively and efficiently by bureaurcracy					-0.692	

Note:

Factor analysis constrained to six factors with varimax rotation.

Factor loadings less than 0.3 not shown.

All negatively worded items reverse coded.

First, it is evident that negatively worded questions tended to have a much lower factor loading on their relevant scale than positively worded questions. For example in the 'supportive management' scale the items "suggestions made by workers on how to improve the work are usually ignored" and "this hospital shows very little concern for me" both had factor loadings of less than 0.40. This phenomenon was found in both of the country studies and for most of the negatively worded items. Interviewers involved in the 360 degree assessment (in both Georgia and Jordan) also noted that respondents hesitated before answering such questions.

Second, while the principal components analysis supports most of the pre-defined scales, it too suggests problems with the scales on resource availability and bureaucratic efficiency. Items from the bureaucratic efficiency scale appear to load heavily and negatively on the resource availability scale. This would suggest that respondents view resource availability to be linked to the level of bureaucratic efficiency. This connection is quite a logical one (high levels of bureaucratic inefficiency are likely to contribute to a sense of limited resource availability among workers), although the negative signs on these items are difficult to understand. Part of the problem may again be the negatively worded questions in the bureaucratic efficiency scale and this also might have contributed to the poor reliability of the scale.

5. Measuring Outcomes of Motivational Processes

5.1   Overview of Outcome measures

Information was collected on three types of outcome measures: (i) affective and cognitive motivational outcomes (ii) self-assessed work behavior and (iii) supervisor assessed work behavior. It had been hoped to complement these three sources of information on performance with more objective data collected from routine sources of information on aspects of performance such as attendance, productivity, etc. However in the end it was not possible to collect this data retrospectively for an adequately large sample of respondents to make the effort worthwhile. While initially it appeared that some such data might be available (for example, data on absenteeism in Jordan, and data on number of procedures performed by doctors in Georgia) on closer inspection such data appeared incomplete and unreliable.

Within the broad construct of affective and cognitive motivational outcomes five sub-scales were used:

> General work satisfaction (Taylor and Bowers 1972)

> Intrinsic job satisfaction (Canman et al. 1979)

> Extrinsic job satisfaction (Seashore et al. 1982)

> Organizational commitment (Allen and Meyer 1990)

> Cognitive motivation. (Aiken and Hage 1966)

The items used on the self-assessed and supervisor-assessed performance questions were identical. They were derived from Kanfer (unpublished) and were fairly generic in nature covering aspects of performance such as timeliness, being a 'hard' worker, being a 'fast' worker, etc. Respondents were asked to indicate on a five-point scale whether the items were (1) very true of me through to (5) not at all true of me. Three sub-scales on performance were derived through principal component analysis these included conscientiousness, timeliness and attendance, and getting along with others.

Previous phases of the research (i.e., the contextual analysis and the 360 degree assessment) had not focused at all (or only to a very limited degree) on defining concepts of performance or assessing performance. The only information that was available in Georgia came from the in-depth interviews conducted as part of the contextual analysis. These interviews did not explore concepts related to affective motivation, cognitive motivation or worker behavior in-depth, but they emphasized the importance of social relationships among workers, and related to this commitment to the organization (which was largely construed by respondents as commitment to the group of staff working at the organization). The other key feature of the Georgian context was that payments to doctors and nurses in hospitals were based almost entirely on the number and type of services they deliver, which

provided a very strong message about what type of behavior/performance was desirable. The Jordanian contextual analysis explored these issues less, but in the Jordanian context there was an established system of performance appraisal. This system appraised workers based upon a fairly standard set of work behaviors that bore considerable similarity to the performance measures used in the study. Perhaps because of this limited information base very few changes were made to the scales as originally developed.

5.2   Scale Reliability

Table 6 presents Cronbach alpha scores for the outcome measures used in the analysis.

Table 6. Cronbach Alpha's for Scales Used in Outcomes Analysis

Motivational Construct	Jordan	Cronbach Alpha	Georgia	Cronbach Alpha
Affective and cognitive outcomes	General work satisfaction	0.73	General work satisfaction	0.71
	Intrinsic work satisfaction	0.86	Intrinsic work satisfaction	0.79
	Extrinsic work satisfaction	0.67	Extrinsic work satisfaction	0.60
	Organizational commitment	0.91	Organizational commitment	0.84
	Cognitive motivation	0.86	Cognitive motivation	0.78
Worker-assessed performance	Conscientiousness	0.86	Conscientiousness	0.86
	Getting along	0.73	Getting Along	0.75
	Timeliness & attendance	0.50	Timeliness & attendance	0.60
Supervisor-assessed performance	Conscientiousness	0.91	Conscientiousness	0.90
	Getting along	0.86	Getting along	0.83
	Timeliness & attendance	0.82	Timeliness & attendance	0.73

Alpha scores were on the whole high. Only for the worker assessed performance scale on "Timeliness and attendance" in Jordan was the Cronbach alpha score very low. Alpha scores were marginally better for supervisor assessed dimensions of performance than worker assessed dimensions, suggesting that supervisors gave more internally consistent answers (at least from the perspective of the pre-defined scales) than workers themselves.

5.3   Criterion Validity

Criterion analysis usually compares a scale under development with a more established scale or objective indicator. In the contexts in which this work was conducted no established determinant or

outcome existed. Instead two different types of analysis were conducted which contribute to our understanding of the validity of the scales and constructs used. First, regression analysis was used to explore whether or not (i) motivational determinants influenced motivational outcomes and (ii) whether affective and cognitive outcomes influenced performance. Second, correlation analysis was used to explore the extent to which supervisor assessed measures of performance correlated with self-assessed measures of performance.

5.3.1   Regression Analysis

Relationships were investigated using simple (ordinary least squares) multiple regression analysis. For the relationship between determinants and outcomes the regressions estimated took the form:

Motivational Outcome = f(demographics, scales related to a particular motivational determinant construct)

Demographic variables were entered as the base model into all regressions, then in turn the scales associated with a particular motivational construct (e.g., all scales associated with job characteristics or all scales associated with organizational characteristics) were added. This procedure was followed for each of the motivational outcome measures (13 in the case of Jordan, 11 in the case of Georgia). Regression statistics were inspected, and for all motivational determinant scales for which significant coefficients were found, the square of the part correlation was computed, which reflects the additional variance explained by this particular variable.

For the second relationship described above a similar analytical procedure was followed, but regressions estimated took the form:

Performance measure = f(demographic variables, affective/cognitive motivational outcome scale)

Tables 7 and 8 present the findings for both Jordan and Georgia in terms of the impact of motivational determinants upon outcomes. On the whole, relationships were not strong. Where motivational determinants were significantly associated with motivational outcomes, the majority explain less than 4 percent of the unexplained variance in the outcome variables, although this is not unusual for this type of work. In Jordan, relationships were stronger, with 25 percent of cases of significant associations explaining 5 percent or more of the variance, while in Georgia only nine reached 5 percent or higher. Relationships tend to be stronger for affective and cognitive motivational outcomes than for performance. For all five of the affective and cognitive motivational outcomes in Jordan there were a number of motivational determinants (notably self-efficacy, motivational properties of job, locus of control and pride) for which sizeable and significant effects were found. In Georgia the strongest explanatory relationships were found for the outcome variables "organizational commitment" and "general satisfaction". Findings for extrinsic and intrinsic satisfaction were weak.

Table 7. Percentage Variation in Outcome Measures Accounted for by Motivational Determinants in Jordan

						Self-Assessed				Supervisor-Assessed			
Determinants	General job satisfaction	Intrinsic satisfaction	Extrinsic satisfaction	Organizational commitment	Cognitive motivation	Consc-ientiousness	General work attitude	Get along with others	Atten-ance	Consc-ientiousness	General work attitude	Get along with others	Atten-dance
INDIVIDUAL DIFFERENCES													
Expectations													
Personal/social consequences	--	--	--	--	--	--	--	--	--	--	--	--	--
Values/work ethic													--
Work as a virtue	--	--	--	--	--	--	--	--	--	--	--	--	--
Values work orientation	--	--	--	1.4%	--	3.2%	1.1%	--	1.8%	--	--	--	--
Effort orientation	1.7%	3.6%	4.4%	3.1%	3.5%	3.4%	--	1.0%	--	--	--	--	
Work-related personality										--	--	--	--
Motivational control	--	--	--	--	--	4.8%	2.5%	--	0.9%	--	--	--	--
Self-efficacy	11.8%	5.6%	7.4%	8.6%	10.2%	--	--	2.0%	--	--	--	--	--
Desire for achievement	--	--	--	--	--								
Emotional personality													--
Emotional control	4.1%	--	--	2.3%	1.0%	2.6%	8.1%	1.8%	1.7%	--	--	--	
Individual differences													--
Job preferences	--	--	--	--	--	4.4%	1.0%	1.4%	3.9%	--	--	--	--
Work locus control	10.6%	0.8%	7.2%	9.2%	0.8%	--	0.9%	1.1%	--	--	--	--	

PERCEIVED CONTEXTUAL DIFFERENCES													
Org'l culture: Pride													
Org'l ctizen. behavior	6.5%	7.5%	9.6%	18.5%	14.7%	--	--	0.9%	--	--	--	--	--
	7.2%	2.9%	1.2%	--	1.2%	0.7%	1.3%	3.9%	1.4%	0.9%	1.0%	1.0%	--
Organizational/ task characteristics Management openness	1.6%	--	--	1.7%	0.6%	--	--	1.0%	--	--	--	--	--
- Motivational properties	5.6%	7.0%	6.2%	5.7%	5.6%	--	--	1.0%	0.9%	1.0%	0.8%	--	--
- Autonomy	--	--	--	--	0.5%	--	--	--	--	--	--	--	--
- Task identity	--	--	--	0.9%	--	--	1.4%	0.8%	--	--	--	--	--
- Feedback	--	--	--	--	--	--	--	--	--	1.1%	--	--	--
- No physical constraints	1.5%	3.3%	7.8%	1.8%	3.4%	--	--	--	--	--	--	--	--
- No bureaucratic consequences	0.6%	1.3%	--	--	1.0%	--	--	2.5%	--	--	--	--	1.0%

Table 8. Percentage Variation in Outcome Measures Accounted for by Motivational Determinants in Georgia

Determinants	General job satisf-action	Intrin-sic satisf-action	Extrin-sic satis-faction	Organiza tional commit-ment	Cognitive motiva-tion	Self-Assessed Consc-ientious-ness	Timeli-ness	Get along with others	Supervisor-Assessed Consc-ientious-ness	Timeli-ness	Get along with others
Expectations Shame	--	--	--	1.8%	--	--	--	--	--	2.3%	--
Values/work ethic											
Self-respect	--	1.8%	--	2.1%	1.8%	--	--	--	--	--	--
Social respect	--	--	--	1.6%	--	--	--	--	--	--	--
Work-related personality											
Motivational control	--	1.0%	--	--	--	--	--	--	1.3%	--	--
Self-efficacy	1.0%	--	--	4.7%	--	--	--	1.0%	--	--	--
Desire for achievement	--	--	1.8%	3.2%	0.8%	--	--	--	--	2.2%	--
Emotional personality											
Emotional control	--	--	--	2.9%	--	--	1.0%	--	--	--	--
Individual differences											
Job preferences	--	--	1.5%	2.2%	--	--	--	--	--	--	--
Work locus control	--	--	--	1.2%	--	--	--	0.9%	--	--	0.9%
Attitudes to change	3.2%	--	--	6.6%	2.2%		--	6.5%	--	--	--

Organizational culture											
Pride	2.1%	--	--	18.3%	1.4%	--	1.0%	--	--	--	--
Organ. citizen. behavior	--	--	--	--	--	--	--	1.3%	--	--	1.0%
Organizational characteristics											
Management support	1.1%	--	--	5.4%	1.4%	--	--	5.3%	--	0.8%	--
Salary/income	3.3%	--	1.3%	--	--	--	--	--	--	--	--
Resource availability	0.8%	--	1.1%	1.1%	--	--	--	--	--	--	--
Bureaucratic efficiency	--	--	--	--	--	--	--	0.8%	--	--	--
Job characteristics											
Feedback	1.1%	--	--	2,2%	--	--	--	1.3%	--	--	--
Social Interaction	--	--	--	--	--	--	--	--	--	--	--
Job Definition	1.2%	--	--	1.3%	--	--	1.3%	0.8%	2.0%	--	--
Intrinsic Interest	2.3%	--	--	2.4%	--	--	--	--	--	--	--

While explanatory relationships were strongest for affective and cognitive motivational outcomes they were weakest for supervisor assessed performance. For these outcome measures very few significant results were found in either Jordan or Georgia.

It is also evident that some of the determinant scales that had low alpha scores nonetheless contributed significantly to explaining the outcome measures.

Tables 9 and 10 show the impact of the affective and cognitive motivational outcomes upon performance. For this set of relationships, there was very little evidence of significant findings.

Table 9. Impact of Affective and Cognitive Motivational Outcomes Upon Performance Measures in Jordan

	Self-Assessed			Supervisor-Assessed		
	Timeliness	**Conscientious**	**Get along**	**Timeliness**	**Conscientious**	**Get along**
General satisfaction	--	--	1.6%	--	--	1.1%
Intrinsic satisfaction	--	0.9%	--	--	--	--
Extrinsic satisfaction	0.9%	1.1%	--	--	--	--
Organizational commitment	1.1%	1.1%	1.9%	--	--	--
Cognitive motivation	--	--	--	--	--	--

Table 10- Impact of Affective and Cognitive Motivational Outcomes Upon Performance Measures in Georgia

	Self-Assessed			Supervisor-Assessed		
	Timeliness	**Conscientious**	**Get along**	**Timeliness**	**Conscientious**	**Get along**
General Satisfaction	--	--	1.1%	--	--	--
Intrinsic satisfaction	--	--	--	--	1.7%	--
Extrinsic satisfaction	--	--	--	--	0.9%	--
Organizational commitment	--	--	1.4%	1.4%	--	--
Cognitive motivation	--	--	--	--	--	--

5.3.2 Correlation Analysis

On a priori grounds the researchers expected there to be a strong positive correlation between supervisor assessed measures of performance and self-assessed measures of performance. If no correlation was found between these measures then this would suggest that there was a problem with at least one of the sets of assessment (either supervisor assessed or self-assessed) or both of these sets.

Table 11 presents correlation coefficients between the two sets of scales for both countries.

Table 11. Correlation Coefficients Between Supervisor Assessed and Self-assessed Performance

Performance Scale	Correlation Coefficient	
	Jordan	Georgia
Conscientiousness	0.119	0.083
Getting along	0.225	0.031
Timeliness & attendance	0.168	0.031

Table 11 shows that in Georgia the correlation coefficient between the two scales were universally extremely low (and insignificant). In Jordan however correlation coefficients were higher and were all significant at the 3 percent level. Although some discrepancy between these two sets of appraisals (self and supervisory) was to be expected the almost complete lack of any relationship in Georgia would appear problematic. It was also interesting that while in Jordan self-assessed scores were uniformly (and significantly) higher than supervisor-assessed scores, in Georgia the reverse was the case.

6. Deriving and Testing Hypotheses

As explained previously the studies described here were largely exploratory in nature as there is a dearth of existing literature in this area. Initial objectives for the in-depth study were (i) to compare ratings of various determinants among types of workers and (ii) test associations between various determinants and outcomes of the motivational process. Specific hypotheses were not derived in advance, largely because it was felt that there was inadequate information upon which to base such hypotheses. The example of differences in motivational determinants between different types of workers in Jordan and Georgia is used here as an example to highlight the hazards involved in this type of cross-cultural analysis.

On an a priori basis the researchers expected to see significant differences in motivational determinants and outcomes between different professional groups. In particular it was anticipated that staff who had face-to-face encounters with clients, and who were directly involved in the delivery of health care services would differ from those cadres of workers, such as administrators and unskilled workers, such as porters and cleaners, who had limited contact with patients and/or no direct involvement in health care delivery.

In Jordan four different occupational groupings were used (doctors, nurses, allied health professionals and administrative/service categories). In Georgia five groupings were used with the administrative and service categories being split out into two different groups. A large number of significant differences were found between occupational categories for the scales: there were significant differences on 14 out of 21 scales in Georgia and 11 out of 20 in Jordan (see Table 12). Moreover for each scale considered, significant differences between occupational groups were found in at least one of the countries. In Jordan most of the significant differences were found on the perceptions of the context rather than individual differences.

Table 12. ANOVA Results Showing Scales on which Significant Differences between Occupational Groups Emerged

	Jordan	Significance of ANOVA	Georgia	Significance of ANOVA
INDIVIDUAL DIFFERENCES				
Expectations	Personal/social consequence	--	Personal/social consequence	**
Values/work ethic	Work as a virtue	--	Work as a means to self-respect	**
	Values work orientation	**	Social respect through work	**
	Effort orientation	--		
Work-related personality	Motivational control	--	Motivational control	*
	Self-efficacy	**	Self-efficacy	--
	Desire for achievement	*	Desire for achievement	**

Emotional Personality	Emotional control	--	Emotional control	*
Individual differences	Locus of control	--	Locus of control	**
	Job preferences	--	Job preferences	**
			Attitudes to change	--
PERCEIVED CONTEXTUAL DIFFERENCES				
Org'l culture	- Pride	**	Pride	*
	- Organizational citizenship	--	Organizational citizenship	*
Org'l characteristics	- Management openness	**	-Management support	--
	- Resource availability	*	Resource availability	--
	- Bureaucratic efficiency	**	Bureaucratic efficiency	*
			Salary/Income	**
Job characteristics	- Motivational properties of job	**	Motivational properties	**
	- job skill variety	**	social interaction on job	*
	- job autonomy	**	intrinsic interest	**
	- job feedback	--	job feedback	--
	- job task identity	**	job task identity	--

Key: ** significant at the 1% level
  * significant at the 5% level

Scheffe tests were used to identify which professional grouping pairs exhibited significant differences. For Georgia, differences matched prior expectations in the sense that doctors, nurses and allied workers significantly differed from administrative and service workers. In Jordan this was not the case: many of the significant differences arose between nurses (or nurses and allied health professionals) versus other cadres of workers.

Jordan is a relatively hierarchical society and assigns quite strong gender roles. In the Jordanian study 71 percent of nurse respondents were female compared to only 18 percent of doctors. Further analysis found that gender was an independent factor explaining differences in scores. For 15 out of the 20 determinants examined there were significant differences between gender groups (at the 5 percent level) in Jordan, and 14 out 20 determinants had significant differences by age group. This contrasts with Georgia where for only three out of 21 determinants were there significant differences by gender and just one out of 21 by age.

It seems that while it is possible to develop generic research questions for cross-country studies on health worker motivation, specific hypotheses need to be rooted in a strong understanding of the context. Furthermore interpretation of findings also needs to be context-sensitive, taking account not only of the immediate organizational environment but also broader societal values.

7. Discussion

Despite some specific and relatively small-scale problems, our conclusion is that both the constructs and scales reflecting motivational determinants worked well in both Jordan and Georgia. Clearly further work is required to refine these scales. For example while the concepts captured in the scales on resource availability and bureaucratic efficiency appear to be significant. The items included in the scales were problematic, and further work needs to be done exploring items that perform better. Future work in developing countries should avoid the use of negatively worded items as respondents appear to react differently to these items.

The outcome scales used in the analyses did not perform as well. Weaknesses were particularly evident in the Georgian context. The affective and cognitive motivational measures appeared to perform better than either the self-assessed or supervisory-assessed performance measures. The low (or non-existent) correlation between supervisor-assessed and self-assessed performance measures in Georgia was also problematic. The weak findings of the regressions, both in terms of the lack of impact of motivational determinants upon performance measures, and the lack of relationship between affective and cognitive outcomes and performance also suggest that there may be problems with the outcome measures, particularly performance measures used. Why do the motivational determinant scales appear to be of higher quality than the motivational outcome scales, and the performance scales in particular? There are a number of possible (and complementary) reasons.

The early phases of the research (namely the contextual analysis and the 360 degree analysis) provided much more rich information about motivational determinants than motivational outcomes. This background information meant that the motivational determinant scales for the final part of the study were much more refined and better adapted to the specific contexts in which the research was carried out, than the performance measures used.

Related to the first point, the performance measures used actually addressed worker behavior rather than worker performance in relation to their jobs. Hence the measures did not reflect well the very particular nature of health care work. For example the performance scale did not attempt to capture important dimensions of providing health care services, such as the quality of interpersonal services (Was the provider polite? Did they demonstrate compassion in the way in which they dealt with patients?), nor the clinical aspects of care (such as whether or not doctors conducted good clinical examinations, or actively monitored patients). These dimensions of performance would probably be perceived by many to be more important than generic factors such as timeliness and speed of work reflected in the instrument.

Furthermore the performance measures may not have been adequately adapted to reflect the characteristics of the contexts within which the research was carried out. This was particularly problematic in the Georgian environment where the context is rather unusual. The Georgian health care sector is characterized by extreme over-supply of both physicians and health care facilities and consequently there are extremely low utilization rates. As an indicator it is common at the hospital level for bed occupancy rates to be considerably less than 30 percent. Doctors at one of the study hospitals had on average only two inpatient cases at any one time, and this workload was probably higher than at the other hospital studied. In such a context it may be seen as a positive virtue to make one small task last a long time, and there is little incentive to maintain a high attendance rate.

Finally, several outcome scales which did not include significant key items. For example the scale on extrinsic satisfaction addressed mainly satisfaction with perquisites, presumably on the basis that basic salary was adequate and therefore not an issue affecting satisfaction. However in the study context, perquisites were few (and largely irrelevant) whereas basic salary was very important.

Many of the problems set out above are problems related to the use of inappropriate psychological constructs rather than issues about measurement or scales. While it is easy to say with hindsight that more specific and context-appropriate constructs should have been used this was not evident prior to conducting the research. In particularly the relative weakness of constructs related to outcomes rather than determinants was not apparent.

It is clear from the studies that there were significant synergies between the qualitative components of the study and the more quantitative components. Qualitative work was particularly important to ensuring that constructs used were appropriate. Qualitative work was also important to analyzing and interpreting findings as demonstrated in section 6. Understanding the context allowed researchers to explain why gender was a more dominant factor explaining differences in motivational determinants in Jordan than in Georgia.

The relationship between supervisor-assessed scores and self-assessed scores in Georgia also appears problematic. The researchers were surprised by the fact that supervisors in Georgia uniformly gave higher scores than those awarded by workers themselves. It is likely that a number of factors in the Georgian context contributed this. First, as noted previously and unlike Jordan, there was no culture of performance appraisal in Georgia, and consequently respondents (particularly supervisors) reacted to the performance appraisal questions with some degree of suspicion. This suspicion was undoubtedly exacerbated by the impending closure of hospitals (though not the study hospitals) and staff redundancies. Interviews showed that many senior staff at both study hospitals felt that they had a responsibility to protect staff jobs. This sense of responsibility probably stems both from traditional systems of patronage and social obligation in Georgia, including the liklihood that most professional staff make an informal payment to their supervisor or hospital management to be hired. By awarding relatively higher performance scores supervisors may have been trying to protect their staff. While the behavior outcome measures used in this study did not work well in Georgia, it is not possible to conclude from this that the measures themselves were fundamentally flawed. Indeed the more predictable and understandable results from Jordan suggest that in a context where people were more accustomed to performance appraisal they may reasonably work.

The discussion above has highlighted some very specific methodological questions that would need to be addressed prior to any more widespread application of the constructs and scales described here. A further objective of this paper was to reflect upon the feasibility of developing further the research methods described in this paper so that studies such as this might be carried out more widely.

While there seems to be increasing interest among developing country policymakers in ways to better understand and influence health worker motivation, there is still substantial work to be done in order to move from the type of analysis described here to more routine work on health worker motivation. One significant concern is the complexity of the instruments themselves, constructing the necessary scales and conducting analysis. This complexity is problematic for several reasons:

> Complexity may make it difficult to apply the instruments when health workers are less well educated;

> Complexity may prevent the more widespread adoption of the research techniques presented here;

> Complexity may prevent policymakers from understanding and acting upon findings.

The instruments (particularly in their self-administered form) would most likely be quite difficult to use in countries with a less educated population than that in Jordan or Georgia. Even in Georgia hospital attendants were not included in the final phase of the study due to the problems they encountered in understanding the instrument. One approach to this problem would be to tailor instruments more to match the perspectives of different occupational groups. For example a core instrument covering basic constructs could be applied to all occupational groups and a more complex module added for certain groups (such as doctors and nurses). However such tailoring of the instrument would need to be rooted in a solid understanding of which constructs are relevant (and comprehensible) to different groups.

The second problem relates to the complexity of methods and analytical techniques used which would most likely prohibit wider scale application, both from the perspective of the resources required to implement the study and the availability of appropriately qualified researchers to conduct the analysis. A number of different responses are available to alleviate this problem. From a resource perspective, future efforts to implement similar studies are likely to be less resource intensive as much of the start up work (in terms of conceptualizing the study, identifying suitable instruments/scales from which to draw, and re-writing items from scales in plain English) has already been conducted. Furthermore we believe it would be relatively straightforward to extend findings from this study to similar facilities in the same countries. From comparing the findings between the two hospitals in each country setting our conclusion is that many of the differences found between hospitals could have been predicted at the stage of the contextual analysis. If a proper contextual analysis is conducted then it should provide a solid basis for extending the results from one detailed study to a broader range of relatively similar settings. For example based upon the findings from this study in Jordan it would probably be possible, using contextual analyses, to extend the results to most public hospitals in the country.

There were however clearly significant differences between the two countries studied, and there would most likely be significant differences between a hospital facility and a primary health care facility in the same country. On the basis of the limited research presented here it is not possible to identify which of the constructs used are universal across countries, or across different facility types. Much more internationally comparable work is needed to reach a conclusion on which constructs and scales can be widely applied and which need significant adaptation to different contexts. Hence on starting research such as this in a new country or in a completely different type of facility, a fairly detailed study such as that described here is probably essential.

Third, the researchers were concerned that the complex analyses undertaken would prevent decision makers from understanding and trusting results. The evidence from Jordan however suggests that this is not an insurmountable problem. In Jordan the researchers worked closely with decision makers and made every effort to convey findings in an accessible manner. While the substance of the analysis may be difficult to follow, most managers appeared to understand easily and relate to the different constructs used in the study. Managers at the two study hospitals have already implemented some changes based upon the findings.

Finally, there are not apparent alternatives to the in-depth approach used in this study. One part of the instrument used in the 360 degree analysis asked which interventions (from a closed list) respondents thought would improve worker motivation in their hospitals. While it was considerably simpler to analyze the responses to these questions, and some interesting findings certainly emerged, there were also problems with this approach. Workers tended to rate low those interventions with which they were unfamiliar but focused primarily on interventions that might improve their

satisfaction (as opposed to their performance). The more sophisticated analysis reported here certainly provided important additional insights and cast light on the extent to which the suggested interventions might be successful (in terms of which groups they would affect most, and how they might affect them). To conclude, while simple surveys asking workers for recommendations on how to improve worker motivation have a role to play, the surveys should be complemented by further in-depth studies if interventions are to be appropriately designed.

8. Conclusions and Directions for Future Work

This study is exploratory. It was the first time that researchers had attempted to apply the psychometric scales commonly used in worker motivation studies in the United States and Europe to the health care sector of developing countries. While substantial problems were encountered, there were also a number of successes. Given the increasing interest in this topic, and the importance of health worker motivation in the delivery of high quality priority health care services, further research work to expand on what has been done here would prove useful. This section starts by identifying a number of specific research priorities for future work, it then makes a broader consideration of how these priorities may be advanced.

Based on the studies conducted a number of further research activities can be identified which would help further methodological development:

> Qualitative work to investigate the different motivational constructs from the perspective of health care workers themselves is key. While this would certainly be useful for many of the scales measuring motivational determinants, it is critical in order to improve constructs and scales measuring motivational outcomes, such as worker performance and worker satisfaction.

> Compiling high quality, objective measures of worker performance would be a useful index against which self-assessed and supervisor-assessed performance measures could be validated. Objective measures would need to capture the many different dimensions of health worker performance (such as interpersonal relationships, clinical quality, etc.). From the experience of the studies reported here, such research would need to collect performance data prospectively as retrospective data tend not to be adequate.

> Replication of studies such as those reported here in a wider range of contexts with the aim of identifying which of the motivational constructs used are widely applicable, and which specific items on scales require extensive modification in different country contexts.

> Implementation of operational research using instruments similar to those reported here as a means to measure the impact of interventions upon worker motivation. Such use of these research instruments would help validate the constructs and scales used. Furthermore this research is essential to begin to understand what type of interventions to promote health worker motivation are likely to be successful in different contexts.

Strengthening understanding of the determinants and consequences of health worker motivation will necessarily go hand in hand with the strengthening of human resource management systems (as well as other management systems). In Georgia very basic information on human resources (such as the number of staff routinely turning up for work at the hospitals) was not available. In Jordan a system of performance appraisal has been established. However, there was still further work to do to strengthen this system as a means not only to improve feedback provided to workers, but also to create a culture where both supervisors and workers were able to evaluate worker performance more objectively. Where emphasis is placed in terms of developing understanding about and interventions

related to health worker motivation should correspond to the existing capacity of human resource management systems in a country: both in terms of data availability and in terms of implementing possible interventions.

The research activities depicted above represent a significant agenda of work. It is difficult to distinguish which items from this agenda are higher priority as they are complementary in nature. For example, qualitative studies of how health workers perceive different aspects of motivation would strengthen the scales used in more quantitative studies; replicating studies such as this in other contexts would strengthen the tools necessary to conduct operational research examining the effectiveness of alternative interventions.

Our initial hope in undertaking this research was to help build a tool that would be applicable across countries and health care contexts, and which could help diagnose and address issues of health worker motivation on a fairly routine basis. The research reported here however has demonstrated how much further study and analysis is required to achieve this goal. The development of such a tool would require cooperation between the different groups working in this field. Through investing in the specific pieces of work identified above and implementing more refined versions of the research instruments in a number of different contexts, it should be possible over a period of time to build a basic tool, and offer guidance to allow for adaptation of this tool for different contexts. Given the importance of human resources and health worker motivation to the delivery of quality and efficient health care services, a coordinated effort to develop further the analytical tools presented here is a worthwhile investment.

Annex A. Items and Scales Used in Analysis

The table below presents those items and scales used in the analysis for the individual country reports. A larger number of items were administered in the questionnaire but several items were dropped from the analysis. A single asterisk (*) indicates that the item or scale was used only in Jordan. A double asterisk (**) indicates that the item or scale was used only in Georgia. In addition to different items/scales, minor adaptations to wording were made in each country context. The items reported here are those that appear to be clearest and most specific. For the report synthesizing results across countries scales (Franco et al. 2001) were re-worked so that they were more comparable.

Scale	Items
MOTIVATIONAL DETERMINANTS	
Work as a virtue*	Dedication to work is a virtue*.
	Cooperation is a virtue in work*.
Personal values orientation to work*	Work should be done with sufficient effort*.
	Consultation allows one to overcome obstacles and avoid mistakes*.
	Devotion to quality work is a virtue*.
Personal achievement orientation to work*	Progress on the job can be obtained through self-reliance*.
	A successful person is one who meets deadlines at work.*
	A person can overcome difficulties in life and better him/herself by doing his/her job well*.
Work as a source of self-respect**	Work is important as it is a source of self-realisation**.
	Work is a source of self-respect**.
	Work is a means to foster personal growth**.
	Dedication to quality work makes a person feel worthwhile.**
Work as a source of social respect and interaction**	Cooperation is a stimulus to achieve better results**.
	Work is important as it enables one to be socially valuable**.
	Work is important as it provides opportunity for social interaction**.

Locus of control	A job is what you make of it.
	On most jobs, people can pretty much accomplish whatever they set out to accomplish.
	If you know what you want out of a job, you can find a job that gives it to you.*
	If employees are unhappy with a decision make by their boss, they should do something about it.*
	Getting a job you want is mostly a matter of luck.
	Making money is primarily a matter of good fortune.
	Most people are capable of doing their jobs well if they make the effort*.
	In order to get a really good job you need to have family members or friends in high places.
	Promotions are usually a matter of good fortune.
	When it comes to getting a really good job, who you know is more important than what you know.
	Promotions are given to employees who perform well on the job*
	To make a lot of money you have to know the right people.
	It takes a lot of luck to be an outstanding employee on most jobs.
	People who perform their jobs well generally get rewarded for it*.
	Most employees have more influence on their supervisors than they think they do.
	The main difference between people who make a lot of money and people who make a little money is luck.
Shame	If I were known as a difficult worker, this would bring shame to my family.
	If I do not put in a full day's work, I would feel badly even if no one else notices*.
	If my supervisor told me I did a poor job, I would feel ashamed.
	If co-workers had to redo my work, I would feel ashamed.
	If everyone were to know that I was not reliable, it would bring shame to my family.
	If I do not do well, I feel badly, even if no one else notices.
	If there were a goal I did not achieve at work, my family would feel shame*.
Supportive management**	Should a problem arise during work, it is usual for my supervisor to assist me.**
	Rules at this hospital are fair**.
	This hospital gives me the possibility of decision making and acting independently**.
	Suggestions made by workers on how to improve the work are usually ignored**.
	This hospital really cares about my well-being**.
	This hospital is willing to help me when I need a special favour**.
	This hospital shows very little concern for me**.
	This hospital cares about my opinions**.
Management openness	I feel comfortable saying what I really think to hospital management about how things are going at the hospital.
	* It would be difficult for me to say something that my supervisor or hospital director might disagree with.
	I feel comfortable saying what I really think [my true opinion] to my supervisors about how things are happening in my work unit.

Developing Tools to Measure Health Worker Motivation in Developing Countries

Pride	This hospital has a good reputation in the community.
	It is a source of pride to get a job at this hospital**.
	The majority of workers in this hospital are proud to work here.
	Workers at this hospital pride themselves in providing good services to patients.
	My co-workers in this hospital regard their work as boring*.
Organizational citizenship	My co-workers help others if they fall behind in their work.
	My co-workers willingly [without complaint] share expertise and skills with other members of the unit.
	My co-workers try to act like peacemakers when co-workers have disagreements.
	My co-workers take steps to prevent problems with other co-workers.
	My co-workers willingly give time to co-workers who have work-related problems.
	My co-workers talk to co-workers before taking action that might affect them.
	My co-workers provide constructive suggestions about how the unit can improve its effectiveness.
	My co-workers attend and actively participate in (team) meetings [related to their work].
	My co-workers find fault [criticize] with what other co-workers are doing.
	My co-workers are willing to risk disapproval in order to express beliefs about what is best for the unit*.
	My co-workers discourage co-workers from complaining about trivial matters*.
	My co-workers focus on what is wrong with the situation, rather than the positive side*.
Motivational properties of the job[3]	The work I do provides me with direct feedback about the effectiveness e.g., quality and quantity) of my performance.
	My managers and co-workers provide me with feedback about the effectiveness (e.g., quality and quantity) of my performance.
	My job provides the opportunity for social interaction such as team work or co-worker assistance.
	My job duties, requirements, and goals are clear and specific.
	I have a variety of duties, tasks, and activities in my job.
	My job requires a high level of knowledge and skills.
	My job requires a variety of knowledge and skills.
	My job permits me to get information and talk to people about things that affect my work.
	My job provides opportunities for advancement to higher level jobs*.
	My job gives me a feeling of achievement and accomplishment.
	My job gives me the opportunity to participate in decisions that affect my job*.
	My job offers adequate pay compared with the job requirements and with pay in similar jobs*.
	My job offers job security as long as I do a good job*.
Job skill variety	I have a variety of duties, tasks, and activities in my job.
	My job requires a variety of knowledge and skills.

[3] The sub-scales on motivational properties of the job were formatted differently in Jordan and Georgia. See country reports for details (Franco et al. 2000b, Bennett et al. 2000c).

	There is much variety in my job.
Job autonomy	I am left on my own to do my own work.[I can do my work the way I want, without interference]*
	I am able to do my job independently of others.*
	My job allows me freedom in how I organize my work, and the methods and procedures I use.
	I have control over the pace of my work*.
	I have a lot of opportunity for independent thought and action*.
Job task Identity	I often see projects or jobs through to completion*.
	I usually have the opportunity to complete work I start*.
	I usually have the opportunity to do a job from the beginning to end (i.e., the chance to do a whole job)
Job feedback	The work I do provides me with direct feedback about the effectiveness e.g., quality and quantity) of my performance.
	My managers and co-workers provide me with feedback about the effectiveness (e.g., quality and quantity) of my performance.
	My job provides acknowledgement and recognition from clients and community
Financial reward**	High achievement on the job is reflected in our payment**
	My job offers adequate pay compared with similar jobs**
	The income I receive is a fair reflection of my skills, knowledge and training**.
	The income I receive more than covers my basic needs such as food, transport and accommodation**.
	With this job I have no worries about how to support myself and my family**
Job preferences	Being able to do a complete piece of work. [Opportunity to do the job from beginning to end].
	Have considerable freedom to adopt my own approach to the job.
	Being able to judge my work performance, right away, when actually doing the job.
	Have a job that gives me a feeling of doing something really worthwhile.
	Being able to achieve something that I really value.
Self-efficacy	I am confident about my ability to handle work problems.
	I effectively cope with any important changes that occur in my work life
	I feel that at work things are going the way I would like them to.
	I feel that I have control of things concerning my work.
Motivational control	Even when my work is boring, I can keep focused on my tasks.
	I consider myself to have self control.
	On difficult tasks, I check my progress frequently*.
	I like to set specific work goals for myself.
	It is easy for me to keep myself from being distracted.
	I do not like to quit a task until it's done.
	Even when I have a boring task to do, I can find something interesting in it.**
Emotional control	When I am worried about something, I can not do my work.
	I have a difficult time concentrating when I am upset (bothered by something).

Desire for work achievement	It is important for me to do my work as well as I can even doing it well isn't popular with my co-workers.
	I find satisfaction in working to the best of my abilities.
	There is satisfaction in a job well done.
	I find satisfaction in exceeding my previous performance even if I don't outperform others*.
	I like to work hard.
	Part of my enjoyment in doing things [*my work*] is improving my past performance.
Attitudes to change**	Deep changes ultimately improve the operations of this hospital.**
	When changes occur in this hospital I react by trying to adjust to the change rather than protest against it**
	I think that I cope with change better than most of those with whom I work**
	Turbulence in the environment presents opportunities to make overdue changes in this hospital**
	I see the rapid changes occurring in the health sector as opening up new career opportunities for me**
Resource availability	A fundamental reason I do not do my job properly is that I do not have the equipment, supplies and/or materials I need.
	I have the necessary materials, supplies and equipment to do a good job.*
	This hospital provides everything I need to do my job effectively**
	Lack of resources at this hospital hinders the delivery of quality care**.
Bureaucratic obstacles	My work is rarely disrupted due to bureaucratic processes.
	There are few instructions that obstruct and delay work.
	I am often prevented from getting my work done effectively and efficiently by bureaucracy and unneeded processes.**
PERFORMANCE SCALES	
Conscientiousness	I am reliable and dependable at work.
	I always finish my work on time.
	My work is of high quality.
	I am a hard worker.
	I do things that need doing without being asked or told.
	I am very knowledgeable about my job.
	I am careful not to make errors**
	I keep updated on new equipment and procedures**
	I am a fast worker**
Timeliness and attendance	I am punctual about coming to work
	I am rarely absent from work
	I spend my time at work on work-related activities.

Gets along with others	I get along well with my co-workers
	I get along well with my supervisor
	I maintain a positive attitude towards my work
	I get upset at work*
	I do not get defensive or upset when criticized*
General job satisfaction	All in all, how satisfied are you with your co-workers in your work unit?
	All in all, how satisfied are you with your supervisor?
	All in all, how satisfied are you with your job?
	Considering your skills and the effort you put into your work, how satisfied are you with your pay?
	How satisfied are you with the management in your department?
	How satisfied are you with hospital management?**
Intrinsic job satisfaction	How satisfied are you with your opportunity to use your abilities in your job?
	How satisfied are you with the chances you have to learn new things?
	How satisfied are you with the chances you have to accomplish something worthwhile?
	How satisfied are you with the chances you have to do something that makes you feel good about yourself as a person?
Extrinsic job satisfaction	How satisfied are you with the fringe benefits you receive?
	How satisfied are you with the educational/training opportunities you get?
	How satisfied are you with the physical working conditions (space, lighting, and ventilation)?
Organizational commitment	I often tell my friends that this hospital is a great organization to work for.
	I feel very little commitment to this hospital
	I find that my values and this hospital's values are very similar.
	I am proud to tell others that I am part of this hospital.
	This hospital really inspires me to do my very best on the job.
	I am extremely glad I work for this hospital, as opposed to other hospitals I might have worked for.
	It would take very little change in my present personal circumstances to cause me to leave this hospital.
	There is not too much to be gained professionally by working for this hospital (indefinitely) [*permanently*].
	Often, I find it difficult to agree with this hospital's policies on important matters relating to its employees.
	For me, this is the best of all possible hospitals to work for.
	Accepting to work for this hospital was a definite mistake on my part.
	I am willing to put in a great deal of effort beyond that normally expected in order to ensure that our work at this hospital is successful.**

Cognitive motivation	How satisfied are you that you have been given enough authority by your superiors to do your job well?
	How satisfied are you with your present job when you compare it to similar positions in Jordan/Georgia?
	How satisfied are you with the progress you are making toward the goals which you set for yourself in your present situation?
	One the whole, how satisfied are you that your superior accepts you as a professional expert to the degree which you are entitled by reason of your position, training and experience?
	On the whole, how satisfied are you with your present job when you consider the expectations you had when you started working here?
	How satisfied are you with your present job in light of (career) [*future professional*] expectations?

Annex B. References

Abu-Saad I. (1998). Individualism and Islamic work beliefs. *Journal of Cross-Cultural Psychology* 29 (2):377-383.

Aiken, M., and Hage, J. (1966). Organizational alienation: A comparative analysis. *American Sociological Review* 31*: 497-507.

Allen, N. J. and Meyer, J. P. (1990). The measurement and antecedents of affective, continuance, and normative commitment to the organization. *Journal of Occupational Psychology* 63*:1–18.

Beaulieu R., Shamian J., Donner G. and Pringle D. (1997) Empowerment and commitment of nurses in long-term care. *Nursing Economics* 151:32-41.

Bennett S. and Gzirishvili D. (2000a) *Health Worker Motivation in Georgia: Contextual Analysis.* Major Applied Research 5. Working Paper No 5. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Bennett S., Kanfer R. and Gzirishvili D. (2000b) *Determinants of Health Worker Motivation in Tbilisi, Georgia: A 360 Degree Assessment in Two Hospitals*. MAR5, Working Paper No 6. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Bennett S., Kanfer R. and Gzirishvili D. (2000c) An In-depth Analysis of the Determinants and Consequences of Worker Motivation in Two Hospitals in Tbilisi, Georgia. MAR5, Working Paper No 9. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Bennett S. and Franco L. (1998) *Summary proceedings: Workshop on Health Worker Motivation and Health Sector Reform*.MAR5, Working Paper No. 2. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Bennett S. and Franco L. (1999) *Public Sector Health Worker Motivation and Health Sector Reform: A Conceptual Framework*. Major Applied Research 5, Technical Paper No 1. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Brett J.M. and Yogev S. (1988). Restructuring work for family: how dual-earner couples with children manage. *Journal of Social Behavior and Personality* 3:159-174.

Cammann, C., Fichman, M., Jenkins, D., & Klesh, J. (1979). The Michigan Organizational Assessment Questionnaire. Unpublished manuscript. Ann Arbor, MI: University of Michigan.

Edwards, J. R., Scully, J. A., and Brtek, M. D. (1999). The measurement of work: Hierarchical representation of the Multimethod Job Design Questionnaire. *Personnel Psychology* 52:305-334.

Franco L., Bennett S., and Kanfer R. (forthcoming) Health Sector Reform and Public Sector Health Worker Motivation: A conceptual framework *Social Science and Medicine.*

Franco L., Kanfer R., Milburn L, Qarrain R. and Stubblebine P. (2000a) *Determinants of Health Worker Motivation in Jordan: A 360 Degree Assessment in Two Hospitals.* Major Applied Research 5, Working Paper 7. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Franco L., Kanfer R, Milburn L., Qarrain R. and Stubblebine P. (2000b) *An In-depth Analysis of Individual Determinants and Outcomes of Health Worker Motivation in Two Jordanian Hospitals*. Major Applied Research 5, Working Paper 7. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Franco L., Bennett S., Kanfer R. and Stubblebine P. (2001) *Health Worker Motivation in Jordan and Georgia: A synthesis of Results.* Major Applied Research 5, Technical Paper 3. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Gilson L., Alilio M. and Heggenhougen K. (1994) Community Satisfaction with Primary Health Care Services: An evaluation undertaken in the Morogoro Region of Tanzania. *Social Science and Medicine* 39(6):767-780.

Haddad S., and Fournier P. (1995) Quality, cost and utilization of health services in developing countries: A longitudinal study in Zaire. *Social Science and Medicine* 40(6):743-753.

Haddad S., Fournier P. and Potvin L. (1998) Measuring lay people's perceptions of the quality of primary health care services in developing countries: Validation of a 20-item scale. *International Journal for Quality in Health Care* 10(2):93-104.

Helmreich R.L. and Spence J.T. (1978). The Work and Family Orientation Questionnaire: An objective instrument to assess components of achievement motivation and attitudes towards family and career. *JSAS Catalog of Selected Documents in Psychology* 8:1-35.

Judge T.A., Thoreson C.J.., Pucik V and Welbourne T.M. (1999) Managerial Coping with Organizational Change: A dispositional perspective. *Journal of Applied Psychology* 1(84):107-122.

Kanfer, Ruth. (1999). *Measuring Motivation.* Major Applied Research 5, Working Paper 1. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Kanfer R. and Ackermann P.L. (2000). Individual Differences in Work Motivation: Further Exploration of a Trait Framework. *Applied Psychology: An International Review* 49:470-482.

Kanungo R. and Medonca M. (1994) Introduction: Motivational models in Developing Countries. In *Work Motivation: Models for Developing Countries.* New Delhi: Sage Publications.

Kingma M.(1998) *Economic Policy: Incentive or Disincentive for Community Nurses?* PHD thesis. London: London School of Hygiene and Tropical Medicine.

Lynch P.D., Eisenberger R., and Armeli S. (1999) Perceived Organizational Support: Inferior versus Superior Performance by Wary Employees. *Journal of Applied Psychology* 84(4):467-483

Martinez J. and Martineau T. (1998) Rethinking Human Resources: an agenda for the millennium. *Health Policy and Planning* 13(4):345-358.

Morrison R.S., Jones L, Fuller B. (1997) The relation between leadership style and empowerment on job satisfaction of nurses. *Journal of Nursing Administration* 275:27-34.

Mutizwa-Mangiza D. (1998) *The Impact of Health Sector Reform on Public Sector Health Worker Motivation in Zimbabwe.* Major Applied Research 5, Working Paper No 4. Chevy Chase, MD: Partnerships for Health Reform, Abt Associates Inc.

Podsakoff, P. M., Ahearne, M., and MacKenzie, S. B. (1997). Organizational citizenship behavior and the quantity and quality of work group performance. *Journal of Applied Psychology* 82(2):262-270.

Rantz M.J., Scott J., and Porter R., (1996) Employee motivation: new perspectives of the age-old challenge of work motivation. *Nursing Forum* 313:29-36.

Seashore, S. E., Lawler, E. E., Mirvis, P., and Cammann, C. (eds). (1982). *Observing and Measuring Organizational Change: A Guide to Field Practice*. New York: Wiley.

Sims, H. P., Szilagyi, A. D., and Keller, R. T. (1976). The measurement of job characteristics. *Academy of Management Journa*, 19:195-212.

Spector, Paul E. (1988). Development of the Work Locus of Control Scale. *Journal of Occupational Psychology* 61(4): 335-340.

Taylor, J. C., and Bowers, D. G. (1972). *Survey of Organizations: A Machine Scored Standardized Questionnaire Instrument.* Ann Arbor, MI: University of Michigan.

Tumulty G., Jernigan I.E., and Kohut G. (1995) Reconceptualizing organizational commitment. *Journal of Nursing Administration* 251:61-65.

Warr, P. B., Cook, J., and Wall, T. D. (1979). Scales for the measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology* 52:129-148.

World Health Organization (1994) *Nursing beyond the year 2000: Report of a WHO study group.* WHO Technical Report Series, No 842.Geneva.