

Training Alone Is Not Enough

Factors that Influence the Performance of Healthcare Providers in Armenia, Bangladesh, Bolivia, and Nigeria

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Background

Training and service delivery organizations have tried for decades to improve the quality of, and access to, healthcare services in developing countries by training healthcare providers. The predominant assumption has been that poor performance is attributable to inadequate knowledge and skills—and therefore, training is the best solution. However, millions of training dollars later, healthcare services are only modestly improved and healthcare providers still struggle to meet the needs of their communities (Stover, 1999; Busquet, 1999).

Realizing that training is oftentimes not the solution, organizations such as IntraHealth International have searched for other ways to improve outcomes at the most basic point of contact between the provider and the client. IntraHealth analyzed both domestic research in Human Performance Technology (HPT), as well as the current research on the systems influencing family planning provider performance within developing countries themselves. A line of research on family planning and reproductive health (FP/RH) provider performance has taken a holistic view of the entire program in a given region or country, where data is collected from experts in the area (Busquet, 1999). Although this research has offered evidence of overall program effects on population-level outcomes, it is of limited use in understanding specific conditions affecting the performance of providers at the facility level.

HPT experts in developed countries, on the other hand, have long established that optimal worker performance is predicated on supporting the worker in a variety of areas, including:

1. Clear expectations
2. Timely performance feedback
3. Adequate environment and tools
4. Incentives and consequences

Improving healthcare services in the developing world remains a major goal for many organizations and despite enormous training and program investments from international organizations, service improvements have been modest. This study looks at how to improve results by examining the relationship between the conditions in a healthcare providers' work environment and his or her performance.

Drawing upon a human performance model that assumes that *performance expectations, timely feedback, adequate environment, incentives, and skills and knowledge* are required for a worker to perform well, this study explores how these conditions might affect healthcare provider performance in four countries. The study successfully shows that although multiple conditions were deficient or missing in every country, significant association is found between the performance of workers and conditions in the workers environment. Further, when viewed across all countries, *non-monetary incentives* is the most powerful "predictor" of performance when compared with other factors. Of particular interest to Performance Improvement practitioners, *knowledge and skills* surfaced as important in only three of eight possible cases (with multiple cases in each country)—the least influential factor overall.

5. Knowledge and skills
 6. Capacity to do the job
- (Rummler & Brache, 1993; Stolovitch & Keeps, 1999)

IntraHealth/PRIME II adapted this list of factors to the international development field, subtracting “capacity” due to the difficulty of addressing public sector worker capacity (see <http://www.jhpiego.org/global/pi.htm>). With these premises at hand, organizations have recently developed and utilized the Performance Improvement (PI) approach to improve provider performance and project interventions in the developing world (Luoma, 2002; de la Peza, 2001; Ashton, 2001; Mielke, 2001; Lande, 2002).

Review of the Literature

Although the logic of looking at a workers’ overall environment when analyzing productivity has been widely documented (Rummler & Brache, 1993; Stolovitch & Keeps, 1999), little empirical research has explored the relationships between worker performance and the specific factors listed above, especially in developing or newly-independent countries. One of the few US based studies was conducted by S. Hwang using mail surveys that were sent to employees and supervisors at the Office of the Inspector General in the Florida Department of Children and Families. Using an elaborate framework of five components of performance (quantity, quality, efficiency, problem-solving capacity, and adaptability) and seven performance factors (performance specification, capacities, knowledge and skills, job/task design, incentives, feedback, and resources and tools), he finds that in the employees’ questionnaire, feedback is related to performance, in particular the efficiency dimension of performance. Though there are relationships between the factors and performance, in the questionnaires filled out by supervisors, results are less definite. Among the limitations of the study is that its cross-sectional design precluded making cause-effect inferences (Hwang, 2002).

Methodology

This study uses a simple framework: it assumes that a worker’s performance is influenced by certain factors within the workplace and hypothesizes that some factors are more influential than others. The objective of the study is to determine which factor(s) have a higher association with provider performance; in other words, which factors might be viewed as “predictors of performance” through their close association (See study framework in Figure 1). Although human performance is comprised of both behavior and its accomplishments (Fort, 2002) this study looks at only the behavioral component of performance. This is due to the point-in-time nature of the study and the difficulties inherent in evaluating the accomplishments of healthcare provider performance. Performance will be determined through the observation of health worker’s realization of job tasks by trained clinical data collectors.

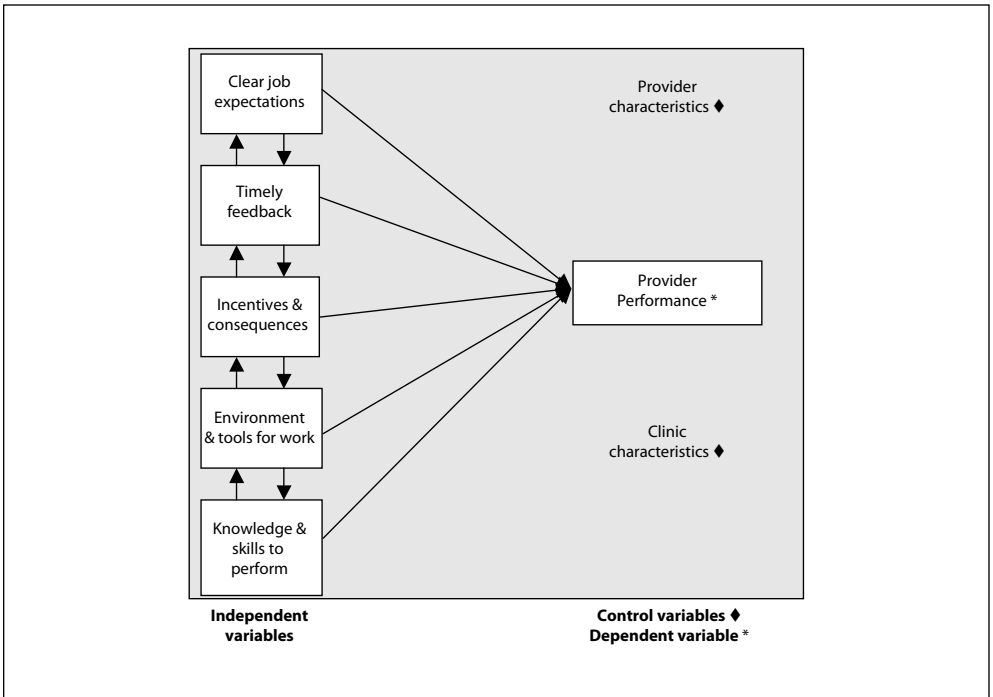


FIGURE 1.
Study design.

Epi Info™, a public domain software package designed for the global community of public health practitioners and researchers, was used to estimate the desired sample size of 300 healthcare providers which were selected to be as homogenous as possible: from a similar cadre (i.e., nurse-midwives); working for one institution (the nations' Ministries of Health or a similar institution); and in primary/intermediate level of care. The study was conducted in four countries, Armenia, Bangladesh, Bolivia, and Nigeria, selected on the basis of regional diversity and access to a large enough public sector healthcare provider population. The exception is Bangladesh, where the sample size is quite small—86 providers—and was conducted as part of an end-of-project evaluation. A total of eight reproductive health service areas were analyzed:

- *Armenia*—prenatal (PNC), postpartum care (PPC)
- *Bangladesh*—family planning (FP) services, prenatal care
- *Bolivia*—prenatal care
- *Nigeria*—family planning counseling, family planning services, and sexually transmitted infections (STI) counseling

In each country Ministry of Health officials participated in the study by reviewing instruments, providing data collectors and/or field supervisors, providing transportation and official letters of authority for data collectors to carry to the field. Observation checklists to assess the behavioral tasks were developed from national protocols when available, or from the

MEASURE *Evaluation's* Quick Investigation of Quality (QIQ) tool. MEASURE *Evaluation* is a project funded by the U.S. Agency for International Development (USAID) to examine the impact of a wide range of activities to improve human health and well-being (Measure Evaluation, 2002). Interviews with healthcare providers were conducted using a questionnaire about the performance factors, tailored slightly for each country to account for cultural and linguistic differences. This questionnaire explored each performance factor area (i.e., clear expectations) with several related sub-questions (job descriptions, supervisor instruction, and discussion with co-worker), with each sub-question considered as a separate variable for analysis. Two-person teams, an observer (clinician) and an interviewer (non-clinician), collected data in the field: the clinician observed the provider conduct a real or simulated client visit while using the designated clinical checklists and the non-clinicians subsequently interviewed the provider using the performance factors questionnaire. Data collectors participated in a week-long training on proper methods of completing questionnaires and checklists. Study instruments had been reviewed by local clinical experts, translated into local languages, and pre-tested twice for consistency and comprehensibility. Because pregnant women were not always available as clients (for example, in Armenia the total fertility rate is 1.7 live births/woman (DHS, 2000)), providers were sometimes asked to simulate a situation with the second interviewer standing in for a client (analyses will take this into account).

Data analysis of all instruments was conducted in two steps using the SPSS statistical software program:

First, analysis was conducted by entering the scores received from the observation of tasks and comparing them to the results from the interviews on the performance factors to determine if significant relationships existed between the behavior of providers and the presence or absence of the five performance factors (this analysis is considered to be bivariate). This indicates whether each individual performance factor has a statistically significant affect on the healthcare providers' performance.

Second, multivariate analysis (more than two variables) was conducted using linear regression to explore the total relationships between the significant variables found in step one and the performance scores. In other words, were all factors found to be individually significant to performance or were some variables more or less critical than others? Variables found to be most critical or influential to performance—those that “push” other variables out of the way are considered “predictors” of performance for this study.

Results

Armenia

In Armenia, the study was conducted in two Armenian *marzes*, or regions (Lori and Shirak), observing and interviewing 285 nurses and midwives performing prenatal and postpartum care services. The prenatal care checklist included 37 tasks the worker was expected to perform during

each client visit. The postpartum checklist included 32 tasks. Performance was low across the board. The average score in prenatal care was 14.2—only 38% of the total possible score. Nurse-midwives performed particularly poorly in several triage and clinical areas such as “Washes hands with soap and water and dries them” and “Takes temperature” and counseling areas such as “Informs woman of side effects of medicines during pregnancy.” Though there was a slight difference in performance between real (38%) and simulated (36%) client-provider interactions, such difference did not reach statistical significance ($p=0.07$).

For postpartum care, scores were slightly higher (an average score of 16.4—51% of the total possible score). Again, there were weak clinical areas, such as examining the skin and conjunctivae as well as for swelling and varicosity in legs. Low scores are also seen in preventive areas such as orienting the woman on sexuality, follow up services and contraception. Unfortunately, only 23% of the 278 postpartum observations were done with real patient visits and the performance observed here was significantly higher (score of 19.2) than with simulated observations (score of 15.7).

Bivariate Analysis

Among the 19 variables representing all the environmental factors, eleven were found to have some significant association to performance. The most significant ($p<0.05$) are listed in Table 1.

TABLE 1
MOST SIGNIFICANT BIVARIATE ANALYSIS RESULTS FOR PNC/PPC IN ARMENIA

Yes= Significant association where $p<0.05$	No= No significant association	
PERFORMANCE FACTOR Variable	Prenatal Care (PNC)	Postpartum Care (PPC)
CLEAR EXPECTATIONS <i>Provider had a job description</i>	Yes	Yes
INCENTIVES & CONSEQUENCES <i>Provider received non-monetary incentives</i>	Yes (employer)	Yes (community)
ENVIRONMENT & TOOLS <i>Provider was satisfied with the way work is organized</i>	Yes	Yes
ENVIRONMENT & TOOLS <i>Provider had equipment, instruments, supplies</i>	Yes	No
KNOWLEDGE & SKILLS <i>Provider believed that [he/she] had the necessary skills to do the job</i>	Yes	Yes
KNOWLEDGE & SKILLS <i>Provider was trained in the use of clinical tools</i>	Yes	Yes
KNOWLEDGE & SKILLS <i>Provider was (recently) trained in reproductive health</i>	Yes	Yes
FEEDBACK & ORG. SUPPORT <i>Provider had received performance reviews</i>	Yes	Yes

In addition to the factors listed above, *timely feedback* almost reaches significance by close margin ($p=0.047$ and $p=0.05$) while the more direct question on whether the *provider receives feedback about his/her performance* was not found to be influential. However, significant association is found with *provider has had a performance review* within the last year.

Multivariate Analysis

Variables that were significantly associated with performance ($p<0.05$; from Table 1) at the bivariate level, plus the background characteristics of facility type, age, years in facility, and real or simulated observations, were entered as independent variables in multiple regression analyses with performance, as measured by performance checklists, as the dependent variable. Again, analyses were done separately for prenatal and postpartum care performance.

TABLE 2
PREDICTING VARIABLES OF PERFORMANCE IN PNC/PPC IN ARMENIA

Predicting Variables	PNC	PPC
Analysis Type		
Real vs. simulated observation		2nd
Background		
Type of facility	1st	
Performance Factor/Related Variable		
Incentives & Consequences		
Incentives by employer	3rd	
Incentives by community		4th
Knowledge & Skills		
Trained in the use of clinic tools	2nd	1st
Feedback & Org. Support		
Received performance reviews		3rd
R Square (adjusted)	0.09	0.15

Three factors, *type of facility*, *training in the use of clinical tools*, and *incentives provided by the employer* surfaced as best predictors of performance prenatal care and four factors, *training in the use of clinical tools*, *real vs. simulated observations*, *receiving performance reviews*, and *incentives provided by the community* became predictors for postpartum care.

Discussion

Knowledge and skills is the most influential factor in postpartum care and second in prenatal care, but only as it relates to training providers in the practical use of clinical tools. A close second is *incentives and conse-*

quences where we begin to see how important *non-monetary incentives*, provided by both employer and the community, can be to good worker performance. Another key finding that is substantiated throughout the remainder of the study is that performance factors are more influential than are background characteristics such as the age of the worker or years working in the facility. This bodes well for public sector programs as background characteristics are a “given” and cannot be easily changed, whereas workplace factors such as incentives and practical training in the use of tools can be improved.

In addition, the *type of facility* in which the provider works is definitely associated with prenatal care performance, although it is not for postpartum care. This is possibly because nurse-midwives providing postpartum care in the lowest level facility generally refer pregnant women to higher level clinics for service for their prenatal care visits. For postpartum care performance, having *performance reviews* was also a predictor of performance—performance reviews are quite rare, and if a nurse-midwife in a rural village is given a performance review, it is more attention than normal— and could have a positive influence on her performance. The type of observation (real vs. simulated) is significant in this case, as providers performed significantly better when caring for an actual client (real observation) than did providers who simulated client visits using a stand-in for a client.

Bangladesh

In Bangladesh, 86 providers were observed delivering prenatal care and family planning services in three *divisions* (the largest political demarcation) of the country. The prenatal care observation checklist consisted of 38 tasks and all providers were expected to complete all tasks. Although the overall performance of providers was quite a bit higher in Bangladesh than in the other countries, certain critical tasks were consistently not accomplished. Fewer than half of providers met the standard of “washes hands with soap and water, and dries them” (46.5%), or “sterilizes instruments” (45.8%). Only 25% of providers performed to standard on “orients client about gender issues and STI prevention” and again, fewer than half on “disposes of medical waste appropriately.”

In family planning, the checklist contained 22 tasks and average performance was 77.7%. Still, two tasks jump out of this list as well, as they are consistent with low performance scores in PNC: only 40.5% of providers washed their hands, and 22.1% informed their clients about sexually transmitted diseases.

Bivariate Analysis

Out of the 28 performance factor variables represented in the analysis, the following six variables listed in Table 3 significantly ($p < 0.05$) affected provider performance and, therefore, were selected for further analysis: *Availability of medical supplies* had an effect on PNC service delivery, but was barely significant ($p = 0.05$). Likewise, *received feedback from supervisor in the past three months* had an effect on FP service delivery, but the

TABLE 3
MOST SIGNIFICANT BIVARIATE ANALYSIS RESULTS FOR PNC AND FP IN BANGLADESH

PERFORMANCE FACTOR Variable	No= No significant association	
	Prenatal Care (PNC)	Family Planning (FP)
CLEAR EXPECTATIONS <i>Provider was involved in discussing roles/tasks</i>	Yes	No
INCENTIVES & CONSEQUENCES <i>Provider received verbal recognition from clients</i>	Yes	No
INCENTIVES & CONSEQUENCES <i>Provider was aware of /had received consequences for substandard work</i>	No	Yes
KNOWLEDGE & SKILLS <i>Provider had been trained in the use of medical tools</i>	Yes	No
ENVIRONMENT & TOOLS <i>Essential drugs/contraceptives were available</i>	Yes	Yes
ENVIRONMENT & TOOLS <i>Provider was satisfied with the way work is organized</i>	Yes	No

difference in average FP performance when analyzed against this variable, was barely significant ($p=0.05$).

Multivariate Analysis

Of the six performance factor variables that proved to have a significant effect on performance, four were found to be predictors of performance. *Availability of drugs and contraceptives* proved to be the strongest in FP, followed by *consequences for poor work performance*. *Incentives from clientele* proved to be the strongest predictor of performance in PNC, followed by *involvement in discussing roles and tasks*.

Discussion

As we look across both clinical services, we find that *incentives and consequences* and *environment and tools* are the strongest predictors of performance: *non-monetary incentives from clients* is most important to PNC, and *having contraceptives available* is most critical for family planning. Second most important in family planning is knowing or experiencing *consequences for substandard performance*, and *clear expectations* surfaces as the second predictor in prenatal care. Although once again at the bivariate level *training providers in the use of clinical tools* was significantly associated with performance, it “fell out” as an influencer when compared with the other factors in the multivariate analysis. It is interesting to note here that of four predicting variables, two fall under the performance factor of *incentives and consequences*—and *knowledge and skills* is not a predictor of performance in Bangladesh.

TABLE 4
PREDICTING VARIABLES OF PERFORMANCE IN PNC/FP IN BANGLADESH

Predictors	PNC	FP
Factor/Variables		
Environment & Tools		
Availability of Drugs		1st
Incentives & Consequences		
Incentives from clientele	1st	
Consequences for substandard performance		2nd
Clear Expectations		
Involved in discussing roles/tasks	2nd	
R Square (adjusted)	0.169	0.111

Bolivia

In Bolivia, 264 auxiliary nurses were observed delivering prenatal care services in the region of La Paz. The checklist used to observe providers had 38 tasks that included interpersonal communication skills, clinical tasks, educational and administrative tasks that providers are expected to complete with clients and in communities. The checklist was derived from the expectations set out by SEDES La Paz (regional health bureau), and providers were expected to complete 100% of the tasks listed.

Average auxiliary nurse performance reached 56%, with nurses in health centers scoring slightly higher than those in more rural health posts. It should be noted that only 64% of nurses had the required supplies to conduct a prenatal care visit; even so, performance was extremely low in the tasks required for a physical exam, including activities that required no equipment (*only 17.4% conducted breast exams, for example*). Only 17.1% of providers conducted a dental exam and 13% evaluated the size of the fetus after week 28 of pregnancy. On the other hand, some scores in interpersonal communications and history taking were quite high (99.1%).

Bivariate Analysis

The bivariate analysis rendered seven factor variables (see Table 5) that are significantly associated with prenatal care performance. In addition, four background variables (facility type, age, years of service, years working in the facility) were also found to be significantly associated to prenatal care performance.

Multivariate Analysis

Table 6 shows that four of the variables included in the regression analysis maintained a strong relationship with PNC performance and became predictors of performance. They are, in order of importance, *environment* (privacy for clients), *feedback & organizational support* (written and verbal

TABLE 5
MOST SIGNIFICANT BIVARIATE ANALYSIS RESULTS FOR PNC IN BOLIVIA

Yes= Significant association where $p < 0.05$	No= No significant association
PERFORMANCE FACTOR <i>Variable</i>	Prenatal Care (PNC)
CLEAR EXPECTATIONS <i>Provider had a job description</i>	Yes
FEEDBACK & ORG. SUPPORT <i>Provider received positive feedback on performance</i>	Yes
FEEDBACK & ORG. SUPPORT <i>Provider had received both written and verbal performance reviews</i>	Yes
ENVIRONMENT & TOOLS <i>Provider had necessary equipment, instruments, supplies</i>	Yes
ENVIRONMENT & TOOLS <i>The work environment offers privacy for clients</i>	Yes
ENVIRONMENT & TOOLS <i>The work environment is comfortable for provider and clients</i>	Yes
ENVIRONMENT & TOOLS <i>The workplace is adequate</i>	Yes

TABLE 6
PREDICTING VARIABLES FOR PERFORMANCE IN PNC IN BOLIVIA

Factor Variables	PNC
Background	
Years of service	3 rd
Facility type	4 th
Factor/Variables	
Environment	
Privacy for clients	1 st
Feedback (& Org. Support)	
Performance reviews are both written and verbal	2 nd
<i>R Square (Adjusted)</i>	0.139

performance reviews), and the background characteristics of *years of service* and *type of facility*.

Discussion

Conspicuously absent in Bolivia is the influence of either *knowledge and skills*, or *incentives and consequences*. Instead, the variable of *privacy for clients* is most important—the only time it surfaces throughout the study. It

is possible that the lack of privacy in the health facility could cause anxiety in both the client and the auxiliary nurse regarding some PNC tasks such as physical examinations (e.g., breast examination). However, substantiating this hypothesis and understanding the adverse effects of the lack of privacy for clients on provider performance would require further exploration. Alternatively, the [physical] lack of privacy could be more indicative of the overall poor environment of the facility, which could also affect provider performance unfavorably.

Regarding the predictor *performance appraisals are both written and verbal*, it is important to point out that the auxiliary nurses assigned to health posts work alone and generally in very remote areas. Many spend relatively long periods without visits from supervisors. According to the multivariate analyses, *performance appraisals that are both written and verbal* (as opposed to either one or the other) is strongly related to higher prenatal care performance; this result may highlight the need to improve the quality—if not frequency—of the supervisory visits in support of these providers. Bolivia is also unique in that the background characteristics of the providers are clearly so important: *years of service* and *facility type*. This again, could be caused because of the rural and isolated nature of most facilities—providers who perform well might be those that have learned to be self-sufficient.

Nigeria

In Nigeria, 276 nurse midwives were observed in six states (Bauchi, Oyo, Delta, Kaduna, Kwara, Enugu) and Lagos, delivering three reproductive health services: family planning counseling, family planning service delivery, and STI (sexually transmitted infections) counseling. The checklist for family planning counseling consisted of 23 tasks. The performance of providers varied considerably: all nurse midwives (100%) met the required standards of “prepares the counseling setting and materials,” but dropped to 76% for “establishes and maintains rapport with client and uses communications skills throughout the session” and to 74% on “confirms the method initially selected by the client of suggested alternative.” Performance was particularly weak in “determines clients’ FP needs and understanding of FP methods” and “explains the FP methods to the client,” where 36.9% and 18.2% of providers met the desired standards. Overall, nurse midwives averaged only 44.9% in family planning counseling.

The checklist for family planning administration consisted of a total of 13 tasks to complete. Though fewer overall tasks, each task in this service area was somewhat more complex and clinical in nature. Scores were generally lower, with only 48.5% completing the task of “preparing the setting and materials,” and only 16.8% of providers performed to standard on the actual “administration of the FP method.”

In counseling for sexually transmitted infections, 14 total tasks were included in the checklist. Overall, performance in this area was much stronger than the other two services observed. For example, 91.2% of nurses met the desired standard in “establishes rapport with client.” Only about

half of nurses (52%) completed “determines client’s needs and understanding of STIs” to standard, but almost 90% scored well in “manages client’s case.” It is not known why performance in this area was better than other service areas.

Bivariate Analysis

When analyzing the relationship of the performance scores to the responses to the performance factors questionnaire, 15 performance factor variables in all were found to have a significant association to performance. The most significant ($p < 0.05$) are listed in Table 7.

**TABLE 7
MOST SIGNIFICANT BIVARIATE ANALYSIS RESULTS IN NIGERIA**

Yes= Significant association where $p < 0.05$		No= No significant association	
PERFORMANCE FACTOR Variable	FP Counseling	FP Administration	STI Counseling
BACKGROUND CHARACTERISTIC <i>Age of provider</i>	Yes	Yes	Yes
CLEAR EXPECTATIONS <i>Provider had a job description</i>	Yes	Yes	Yes
INCENTIVES & CONSEQUENCES <i>Provider receives non-monetary incentives (in-kind)</i>	Yes	Yes	Yes
INCENTIVES & CONSEQUENCES <i>Provider is aware of/ has received written and verbal reprimands for substandard work</i>	Yes	Yes	Yes
FEEDBACK & ORG. SUPPORT <i>Provider has received feedback on performance</i>	Yes	Yes	Yes
FEEDBACK & ORG. SUPPORT <i>Provider has received performance reviews</i>	Yes	No	No
KNOWLEDGE & SKILLS <i>Provider believes that [he/she] has the necessary skills</i>	Yes	No	Yes
ENVIRONMENT & TOOLS <i>Provider has the necessary tools, equipment, supplies</i>	Yes	Yes	No

In FP Counseling, achieving significance of ($p < 0.01$) were *has a job description; has received a written reprimand; has received performance reviews; has the medical supplies and equipment;* as well as the background variable of the provider’s age. In FP Administration, most significant were *has a job description* ($p = .006$); *non-monetary incentives from employers* ($p = .010$); *equipment and supplies* ($p = .004$); and finally, most significant for STI counseling were, *non-monetary incentives from employers* (incentives) ($p = .001$); *has reference materials* ($p = .007$).

Multivariate Analysis

Variables significantly associated with performance at the bivariate level, plus available background characteristics, were selected as independent variables for multiple regression analyses of performance. Analyses were done separately for the three service areas: FP counseling, FP administration, and STI counseling. Results appear in Table 8, with the order of importance of predictors for each assessed area.

**TABLE 8
PREDICTING VARIABLES FOR PERFORMANCE IN FP COUNSELING,
FP ADMINISTRATION AND STI COUNSELING IN NIGERIA**

Predictors	FP Counseling	FP Admin.	STI Counseling
Background Characteristics			
Age	4th		
Factor/Related Variables			
Clear Expectations			
Written job description	1st	3rd	4th
Feedback (& Org. Support)			
Receives performance review	3rd		
Receives developmental feedback		2nd	
Incentives & Consequences			
In-kind gifts from employer			1st
Consequences- verbal reprimand			3rd
Consequences- written reprimand	2nd	4th	
Environment and Tools			
Reference materials			5th
Has equipment/instruments		1st	
Knowledge and Skills			
Believes he/she has the needed knowledge & skills			2nd
<i>R Square (adjusted)</i>	<i>0.023</i>	<i>0.088</i>	<i>0.114</i>

Discussion

As in the other three countries, the relationship between the factors and performance in the bivariate analysis is compelling. Working across three clinical areas, five factor variables were found significantly associated with performance at $p \leq 0.05$ in all three services, and nine factors significant across two of them. In the multivariate analysis, we begin to see a preponderance of predictors in two areas: clear expectations (which includes job descriptions), and incentives (which includes consequences for poor performance.) The most commonly blamed problems for performance, lack of training and lack of equipment, are

the least impressive in terms of their ability to predict, and therefore influence, provider performance.

Conclusions

One of the greatest challenges faced by performance improvement practitioners in any situation is to fully understand the scope, causes, and secondary results of performance problems. In established and functioning organizations it is challenging enough; in the developing world, it is particularly difficult. This study should help PI practitioners and program managers understand the relationships between a worker's environment and performance, and recognize that the right environmental conditions can help the healthcare provider perform a little better. Perhaps in this way scarce resources can be channeled to support workers in the best ways possible.

Although it is difficult to identify a single factor that is most critical in all instances, correlations clearly exist between the environmental factors and provider performance. Each of these factors is important, but the *most* important according to our findings is *non-monetary incentives*, such as verbal recognition, small gifts, and increased respect from both the community and the supervisor. We did not include increased salary and bonuses in our model because of the budgetary difficulties faced by most ministries. Therefore, it is impossible to say what effects the consideration of salary and financial incentive might have had on the study results. The factor cited least was *knowledge and skills*—a finding that reinforces recent HPT findings as well as USAID efforts to do more than “just train” providers. Table 9 summarizes the findings across countries and areas of services by listing the variables associated with performance by importance. By totaling the number of times a variable surfaced, we find that *non-monetary incentives* was associated in eight of eight studies, and although not at all in Bolivia, it appears twice in Nigeria. By contrast, *knowledge and skills* became a predictor in only three instances, with most other factors cited four times.

Another interesting conclusion of this study is that this approach and methodology remained robust and viable while used with a much smaller sample size than originally estimated. It is possible, therefore, to use this approach in the field to analyze the factors that influence performance and advise in-country counterparts on how they might focus efforts and funding to improve performance.

Study Limitations

This study is largely of exploratory nature. As mentioned, there have been no empirical studies that we know of combining perceived performance factors and observed performance in the field of FP/RH in low-resource settings. Hence, interpretation of findings needs to be done with caution. Several caveats to the study should be mentioned.

First, the cross-sectional nature of the study, and corresponding associations found, do not imply causal relationships between the factors and provider performance. Though questions related to performance factors were

TABLE 9

SUMMARY OF PERFORMANCE FACTOR RESULTS BY HEALTH SERVICE AND COUNTRY

(* Total column signifies number of times a variable surfaced as associated with provider performance across all studies.)

Performance Factor	Armenia		Bangladesh		Bolivia	Nigeria			TOTAL*
		2nd							
Simulated / Real		2nd							1
Background Variables									
Age of Provider						4th			1
Type of Facility	1st				4th				2
Years of Service					3rd				1
Performance Factors									
Clear Expectations				2nd		1st	3rd	4th	4
Feedback & Org. Support		3rd			2nd	3rd	2nd		4
Incentives & Consequences	3rd	4th	2nd	1st		2nd	4th	1st 3rd	8
Environment & Tools			1st		1st		1st	5th	4
Knowledge & Skills	2nd	1st						2nd	3
Health Service Area	Prenatal Care	Postpartum Care	Family Planning	Prenatal Care	Prenatal Care	FP Counseling	FP Administration	STI Counseling	TOTAL CASES

asked with a retrospective connotation (e.g., “in the past 6 months, have you received any supervisory visit?”), memory recall and rationalization may curtail providers’ recollection of factors affecting their performance. The multivariate analyses has been carried out by merging data from two different exercises and data collectors, thus arguably adding variation (and a degree of error) to the usual limitations.

Another aspect worth mentioning is the inherent challenges in the application of the factors questionnaire by interviewers. Though pre-tested and improved through pilot testing, several concepts with heavy Western connotations (e.g., what providers answered as “feedback” seems to have been other types of interaction).

We have also used a “proxy” of performance, through the observation of skills. There are other components of performance (e.g., accomplishments)

not included in the study. The low R square rates (R square is a statistical term describing how much variation can be explained by the model) obtained implies our model has captured only a small percentage of the total variation, suggesting that there might be several other factors associated with performance or perhaps better instruments/methods to determine it.

In addition, there is an added bias associated with the “Hawthorne effect” in both direct observation and “hypothetical client” approaches to measuring provider performance. Although these approaches are widely recognized as having inherent limitations, both are considered among the best methods for assessing a provider’s clinical behavior in a truly technical and systematic way (Simmons, 1994; RamaRao, 2003). One such study however, directly stated that the data collected through direct observation using the QIQ tool, which was utilized in the study, is as reliable as alternative methods for data collection, such as client exit interviews and “mystery clients” (Bessinger, 2001). For our purposes, however, where we were assessing a provider’s technical performance, direct observation was key for obtaining reliable data.

Furthermore, there is a perceived loss of complexity within the provider-client interaction when a “hypothetical client” is used in lieu of a normal client, as was used in some of the data collection. Case simulation might not replicate entirely the quality and completeness of the normal exchange occurring during direct observation of a provider with a real client, thus producing lower performance scores and possibly affecting the appearance of performance factors in unknown ways (Leon, Espinoza, V., Espinoza, A., & Meza, 2003). However, once again, “hypothetical clients” have been widely recognized as a reliable and systematic way to assess technical competency when other alternatives are not viable due to low case load for years (Woodward, MacConvey, Neufeld, Norman, & Walsh, 1985). In our case, though unavoidable, differences did appear in our measures of performance between real and hypothetical scenarios.

List of Abbreviations

ANC—Antenatal Care
FAP—Health Center or prime post
FP—Family Planning
HPT—Human Performance Technology
PI—Performance Improvement
PPC—Post Partum Care
QIQ—Quick Investigation of Quality
RH—Reproductive Health
STI—Sexually Transmitted Infections

Acknowledgment

Study undertaken through support by USAID G/PHN, under the terms of PRIME II Cooperative Agreement No. HRN-A-00-99-00022-00. The views are solely of the authors.

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