QUALITY OF CARE FOR FAMILY PLANNING: A COMPARISON OF PRIVATE AND PUBLIC FACILITIES IN 7 COUNTRIES USING SURVEY DATA

MOMENTUM Private Healthcare Delivery (MPHD)

Cover photo: *Papa Zebika with a client at Clinic Bomoi, Democratic Republic of the Congo*. PSI stock photo.

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ACKNOWLEDGEMENTS

ABBREVIATIONS

ANC	Antenatal care
CI	Confidence interval
CHAM	Christian Health Association of Malawi
DHS	Demographic and Health Surveys
DRC	Democratic Republic of the Congo
EX	Exit interview
FBO	Faith-based organization
FI	Facility inventory
FP	Family planning
HW	Health worker (interview)
HCT	HIV counseling and testing
IUD	Intrauterine device
MII	Method Information Index
MPHD	MOMENTUM Private Healthcare Delivery
OB	Observational protocol
PMTCT	Prevention of mother to child transmission
PNC	Postnatal care
PSI	Population Services International
SPA	Service Provision Assessment
STI	Sexually transmitted infection
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Why study private sector quality of care for family planning?

The private sector plays a substantial role in the provision of voluntary family planning (FP) in low- and middle-income (LMIC) countries.[1] Formal private health facilities are typically registered with public authorities, but LMIC governments often do not have adequate resources to effectively regulate or oversee them.[2] Subsequently, concerns arise related to the quality of care at private outlets.[3] Meanwhile, some experiences show that clients may choose private sector services due to perceived higher quality of services.[4-6] However, there is limited information about the actual or comparative quality of care provided at formal private facilities.[7] Service Provision Assessment Surveys (SPAs), conducted by the Demographic and Health Surveys (DHS) Program, provide a unique opportunity to examine a comprehensive, standardized set of indicators of quality of care for FP services across several countries.

What countries were included in this analysis?

The MOMENTUM project used data from seven countries with recent DHS and SPA surveys, including Bangladesh (DHS: 2017-18; SPA: 2017), the Democratic Republic of the Congo (DRC) (DHS: 2013-14; SPA: 2017-18), Haiti (DHS 2016-17; SPA: 2017-18), Malawi (DHS: 2015-16; SPA: 2013-14), Nepal (DHS: 2016; SPA: 2015), Senegal (DHS and SPA: 2019), and Tanzania (DHS: 2015-16; SPA: 2014-15).

What methods were used to conduct the analysis?

We compared quality of care among different types of formal public and private facilities (excluding individual doctors' offices, pharmacies, or shops). Quality of care was assessed using composite measures reflecting three key components: structure (physical attributes of the facility), process (delivery of care), and outcome (impact of care). Each component is further described using several domains of care. For structure, this includes choice of methods, FP integration/constellation of services, management, facility infrastructure, and FP infrastructure. For process quality, the domains are choice of methods, technical/provider competence, follow-up, information given to clients, and client-provider relations. Finally, outcome quality reflects client experience of care. Using a weighted additive approach, the composite measures were calculated by averaging the number of "yes" responses to items within each domain, then averaging the domain scores within each quality component (i.e., structure or process). Differences in quality of care scores were evaluated using regression analyses to control for facility characteristics (for structural quality) and client characteristics (for process and outcome quality) and produced adjusted estimates of quality scores

DEFINING QUALITY OF CARE
STRUCTURE: PHYSICAL SETTING OF CARE   • Choice of methods   • FP integration/constellation of services   • Management   • Facility infrastructure   • FP infrastructure   **PROCESS: DELIVERY OF CARE**   • Choice of methods   • Technical/provider competence   • Follow-up   • Information given to clients   • Client-provider relations   **OUTCOME: IMPACT OF CARE**   • Client experience (e.g., satisfaction)

from the marginal effects of the models. Scores were standardized to a scale of 0 to 100.

What are the key findings?

Structure

The results often indicated that among formal sector health facilities included in the SPA survey, the quality at private facilities across countries is similar to what is provided and available in public facilities. Scores reflecting structural quality, particularly 1) management (supervision, systems for reviewing administrative issues or client feedback, inventory and organization of contraceptives) and 2) availability of a choice of methods (at least one each of long-acting, short-acting, and barrier method), tended to be lower in some types of private facilities. Generally, infrastructure tended to be higher in private facilities than in public facilities. However, these results were not consistent across countries.

Process

Overall, there was large variation in process quality across countries (scores ranged from the 30s in Nepal to the high 60s in the DRC). However, within countries there was little variation across managing authorities. The only significant difference by managing authority was in Malawi, where nonprofits had (marginally) significantly higher scores than public facilities. Process quality was low for both public and private sectors across countries, especially for domains related to counseling around method choice, information given to clients, and technical competence. Some aspects of service delivery or counseling tended to be higher in private facilities across countries, although these were inconsistent, and the differences were often not significant. For example, clients at private nonprofit facilities in Malawi, private for-profit facilities in the DRC, and private hospitals in Nepal reported better client-provider relations than public facilities, while there were higher reports of technical competence at faith-based organizations in Tanzania compared with public (or parastatal) facilities.

Outcomes

Outcome quality, which measured client satisfaction through client exit interviews, was universally high across countries. There were few differences within countries by facility managing authority, with the exceptions being in Nepal and Tanzania.

What does this mean?

Our analysis found that overall, there are not consistent differences in FP quality between public and private facilities in terms of the provision of FP services as measured in SPA surveys. In many countries no significant differences between public and private facilities were found across most domains in general. This challenges longstanding assumptions that because private providers are often inadequately regulated, their quality of care is likely poorer than that in the public sector. It also challenges findings that clients generally perceive quality of care to be better in the private sector. The analysis provided additional nuanced and useful insights. The domains of structural quality related to management and method choice availability were comparatively low for private facilities in most countries, indicating that operational and management support in the private sector is still relevant and warranted. Low scores in the process component among both public and private facilities across countries, especially for counseling, suggest that quality improvement measures for this area of FP service delivery are acutely needed across both sectors. Consistently high scores on outcome measures for both public and private providers across countries suggest that 1) better measures may be needed to capture true client experience and satisfaction and 2) rights-based interventions may be

equally needed so that clients elevate their expectations for the quality of care they receive to a higher standard.

INTRODUCTION

Private sector provision of contraception expands women's opportunities to meet their family planning (FP) needs.[1] Through increasing access to healthcare in otherwise underserved areas, the private sector is critical in reaching Sustainable Development Goal 3, target 3.8, *achieving universal health coverage*.[8,9] Private sector sources can include both formal and informal establishments. Although the definition of what differentiates formal and informal sources vary, the formal sector typically includes facilities, outlets, and providers that are registered with the relevant local authorities and often receive payments from governments, other third-party institutions, or from clients themselves. In the case of those associated with non-governmental organizations (NGOs), these providers are also usually licensed appropriately but may also be supported with donor funding.[2] While outlets like pharmacies and drug shops can be formally registered, national, periodic health facility surveys like Service Provision Assessment (SPA) surveys consider them "informal."[2,10,11]

In low- and middle-income countries (LMICs), the private sector—both formal and informal—provides FP for approximately one-third to half of women using modern methods, and approximately half of that (with some variation by region) is through formal private medical facilities, NGOs, and faith-based organizations (FBOs).[1,12] Among women using modern methods, private sector use generally increases with increasing wealth and education, and it is higher for women in urban residence than in rural areas.[12,13] When pooling across countries, the types of methods obtained also vary by type of public or private facilities.[12,13]

While formal private facilities may be registered with local authorities, LMIC governments often lack capacity and resources to effectively regulate and oversee privately-delivered services.[14] With no or weak public oversight functions in place, concerns arise related to the quality of care in the private sector.[3] Meanwhile, FP clients may prefer to attend private sector facilities out of perceived higher quality of care.[4–6] Research comparing public and private facility quality is limited, mixed, and shows varying quality depending on the aspect of quality studied.[7,15–17] An analysis of facilities in the Democratic Republic of the Congo (DRC) found that FP quality (measured in this analysis as a composite indicator of at least one of: trained staff, guidelines, method availability, and blood pressure monitor) was higher in public facilities than private facilities.[17] In a study in Ethiopia, several indicators of facility-based or structural quality were more commonly found in private facilities than public (including availability of basic amenities and FP-related equipment) but public facilities were more likely to have long-acting methods and recently-trained FP providers.[15] Similarly, a study examining data from Tanzania, Kenya, and Ghana found that public facilities had more methods available, and were more likely to have FP guidelines, protocols, and visual aids on site, but that private facilities had better infrastructure and equipment.[16] This study also examined client-based measures related to counseling and satisfaction and found that either interpersonal aspects or technical care largely did not differ by managing authority (public or private), although client satisfaction was higher at private facilities.[16]

While these studies have some overarching commonalities, definitions of private sector facilities differed across surveys, as did measurement of quality of care. This resulted, in part, from the use of varying survey instruments. SPA surveys, conducted by the Demographic and Health Surveys (DHS) Program, provide a unique opportunity to examine a comprehensive set of standardized quality of care indicators for FP services across several countries. The aim of our analysis is to apply a standard framework and measurement of quality of care using health facility data to assess differences in quality by managing authority. In this way, we

compare formal sector public and private facilities, with disaggregation by type of private facility where possible. Given that the role of the private sector may vary by scope and reach across countries, we provide contextual information about the method mix and source of methods using DHS household survey data as well.

DATA AND METHODS

DATA

This analysis uses data from seven countries with recent DHS and SPA surveys. DHS surveys are nationally representative and designed to collect both monitoring and impact evaluation indicators for use within countries and in cross-country comparisons. The DHS women's questionnaire asks respondents about their use of FP and the source of their current method. Each country can tailor the source options to the health services market in their country, so sources are not entirely standardized across country. Our analysis includes the following DHS surveys: Bangladesh (2017-18), the DRC (2013-14), Haiti (2016-17), Malawi (2015-16), Nepal (2016), Senegal (2019), and Tanzania (2015-16). Given that DHS does not assess quality of care comprehensively, we drew information from health facilities ascertained from SPA surveys.

SPA surveys are conducted among a nationally representative sample or a census of health facilities. For sample surveys, the facilities are selected using a complex sample design that typically involves stratification by facility type (hospital, non-hospital) and by managing authority (public, non-public), and region. Outlets such as pharmacies, shops, or community or mobile clinics, are defined as informal entities during the SPA sample design, and are therefore not eligible for inclusion.[11] In 2012, the SPA was standardized in collaboration with international agencies such as the World Health Organization to ensure collection of global service readiness indicators in addition to several other quality metrics.[11] The survey currently comprises four questionnaires: the facility inventory, the health worker interview, and for selected services including FP, an observation of visits and client exit interview. For FP services, a convenience sample of clients are observed for up to 5 clients per provider for up to 3 providers (up to 15 clients per facility). Our analysis includes all SPA surveys that have been conducted after the standardization of the instruments. These surveys were: Bangladesh (2017), the DRC (2017), Haiti (2017-18), Malawi (2014-15), Nepal (2016), Senegal (2019), and Tanzania (2014-15).

METHODS

MEASURES

Our analysis applied Donabedian's 1988 framework for conceptualizing quality of care[18] in combination with the Bruce-Jain 1990 framework for FP-specific domains of quality of care.[19] Donabedian describes quality in terms of three key components: structure (describing the physical setting of the care provided), process (how the care is delivered in practice), and outcome (the impact of care).[18] Following a review of the literature, Mallick, Temsah, and Wang[20] identified 53 indicators across eight domains within the structure and process components identified within the Donabedian and Bruce-Jain frameworks. In our analysis, we adapted this conceptualization with several revisions that improve and expand measurement. First, for the structural quality, we divided the domain of infrastructure into two domains of general infrastructure and FP-specific infrastructure. Second, the indicators related to counseling were restricted to clients who left with a method for which counseling about the specific topic was assessed, rather than using a uniform denominator (i.e., a woman who left with any method or a related prescription). Additionally, we included two indicators of

process quality: audio and visual privacy, which were constructed using concordant responses in the observation and exit interview. Finally, we added the outcome component to capture additional measures of client experience of care, including overall satisfaction, satisfaction with wait time, and willingness to recommend the facility to a friend or family member.

Our measurement of quality of care, subsequently, is a comprehensive assessment of both facility-level readiness and provider adherence to guidelines. It also reflects provision and receipt of client-centered care using 57 indicators across 10 domains. Figure 1 depicts the framework we applied in our analysis. Appendix Table 1 further shows the Donabedian component, FP quality domain, indicator description, and survey instrument.

FIGURE 1. QUALITY OF CARE FRAMEWORK AND DOMAINS ADAPTED FOR THIS STUDY

Donabedian (1988) Components of Quality		
Structure: *Physical setting*	**Process:** *How care is delivered*	**Outcome:** *Impact of care*
• Choice of methods (1) • Family planning integration/ constellation of services (5) • Management (5) • Facility infrastructure (6) • Family planning infrastructure (13)	• Choice of methods (2) • Technical/provider competence (14) • Follow-up (1) • Information given to clients (2) • Client-provider relations (6)	• Client experience (3)
Domains of quality of care informed by Bruce-Jain (1990) Number indicates number of indicators included in the domain		

ANALYSIS

To contextualize FP use in each country, we first examined method mix by source of methods using DHS data. The method mix is a percentage distribution of contraceptive users in a given country, by method. When a woman reported using more than one method, the most effective method is included. Where there were fewer than 25 observations of a given method, we grouped these methods into an "Other modern" category. While the methods that fell below this threshold varied by country, often use of emergency contraception and standard days methods was rare and thus grouped into the "Other Modern" category. For each country, we constructed an indicator of the method source to most closely align with the facility types used in the SPA surveys. The source type "Pharmacy/shop/other" encapsulates the sources not included in the SPA. For Nepal, there is also a category of "Other private medical" to capture the private non-hospital clinical sources that were not included in the SPA. These two indicators were cross-tabulated to analyze the distribution of methods and sources across all modern method users and within each source.

Each indicator of quality was created as a binary measure (i.e., yes or no) and first cross-tabulated by managing authority in each country, with significance of the difference assessed by Chi-Square tests of independence. Next, for each domain, we summed responses and divided the number of "yes" responses by

the number of possible items within each domain. For total structural or process quality scores, we used the weighted additive approach that weights each domain score equally by summing the domain scores and dividing by the total number of domains within each quality component (i.e., structure or process). More details about the method to calculate this index are described elsewhere.[20] For Bangladesh, given there were no observations of services, we did not calculate process or outcome quality. In some countries, some questions were omitted from the SPA, and indicators based on these questions were not included in the calculation of the score; in other words, scores were not penalized for an absence of information.

In order to compare quality metrics by managing authority, we conducted statistical analyses in a way that reduced the influence of confounding factors, which are variables that may affect both the dependent variable (quality of care) and the main independent variable (managing authority). For example, facility type (hospitals, health centers, clinics, or dispensaries), may impact quality and may also be associated with managing authority. Without controlling for such confounding factors, analyses may yield spurious or false relationships between quality and ownership. Thus, we conducted fractional regression models with a probit link, designed specifically for continuous outcomes scaled 0 to 1 (inclusive) like our quality of care indices, to assess differences in quality scores by managing authority after controlling for these confounders. We conducted separate regression analyses for each component and domain of quality. For structural quality and related domains, we controlled for facility differences including facility type and urban or rural location, and for process quality, we controlled for client characteristics including new or returning client, clinical method use, client age, client education. We set a significance level of $\alpha = 0.05$. We calculated the marginal effects at the means for each category of managing authority for the overall and domain scores to predict quality of care after adjusting for confounders. The 95% confidence interval (CI) was drawn from the marginal effects of the linear combination; we applied the *normal()* function to the CIs to produce asymptotic CIs bounded between 0 and 1. These estimates were then multiplied by 100 for a more intuitive understanding.

We conducted this analysis using Stata version 16.1. All analyses used survey weights to account for respondent, facility, or client non-response and disproportionate sampling. Analysis of sample household and facility data also employed *svy* command to account for the complex sample design, calculate robust standard errors, and include 95% CIs for estimates and predicted scores. The census SPA surveys (i.e., Haiti and Malawi) do not include 95% CIs for facility estimates (i.e., structure score, domains, and indicators) as these estimates represent the true estimates within each country. However, for each SPA survey, client data included 95% CI given client data were collected from a sample of clients.

RESULTS

METHOD MIX AND SOURCE OF METHODS

According to the DHS household survey data, the method mix varies widely among the countries. For example, sterilization ranges from just over 1% of modern method users in Senegal to nearly half of all modern method users in Nepal. Injectables are the most prevalent method in Haiti, Malawi, Senegal, and Tanzania, while oral contraceptive pills are most prevalent in Bangladesh, and condoms in DRC. Method sourcing also varies widely, although the public sector is prominent in each country with two notable exceptions. In Bangladesh and the DRC, pharmacies and shops—defined as informal private sector outlets that are not included in the SPA surveys and analysis—are the largest source of modern methods. On average across the countries, the formal private sector provides a similar mix of methods as in the public sector,

although the market share is significantly smaller. Meanwhile, the informal private sector as defined in the SPA (e.g., pharmacies and shops) provides a disproportionately larger share of short-acting methods.

Figure 2 illustrates this method mix variation in two ways. For each country, the top graph displays the percent of women using each modern method and the source of that method. This shows the relative market share of each source. The bottom graph for each country shows the method mix distribution within each source, in order to better see which methods are accessed at each facility type.

FIGURE 2. METHOD MIX BY SOURCE ACCORDING TO DHS DATA

Note: CHAM = Christian Health Association of Malawi; FBO = faith-based organization; HC = health center; IUD = intrauterine device; NGO = non-governmental organization
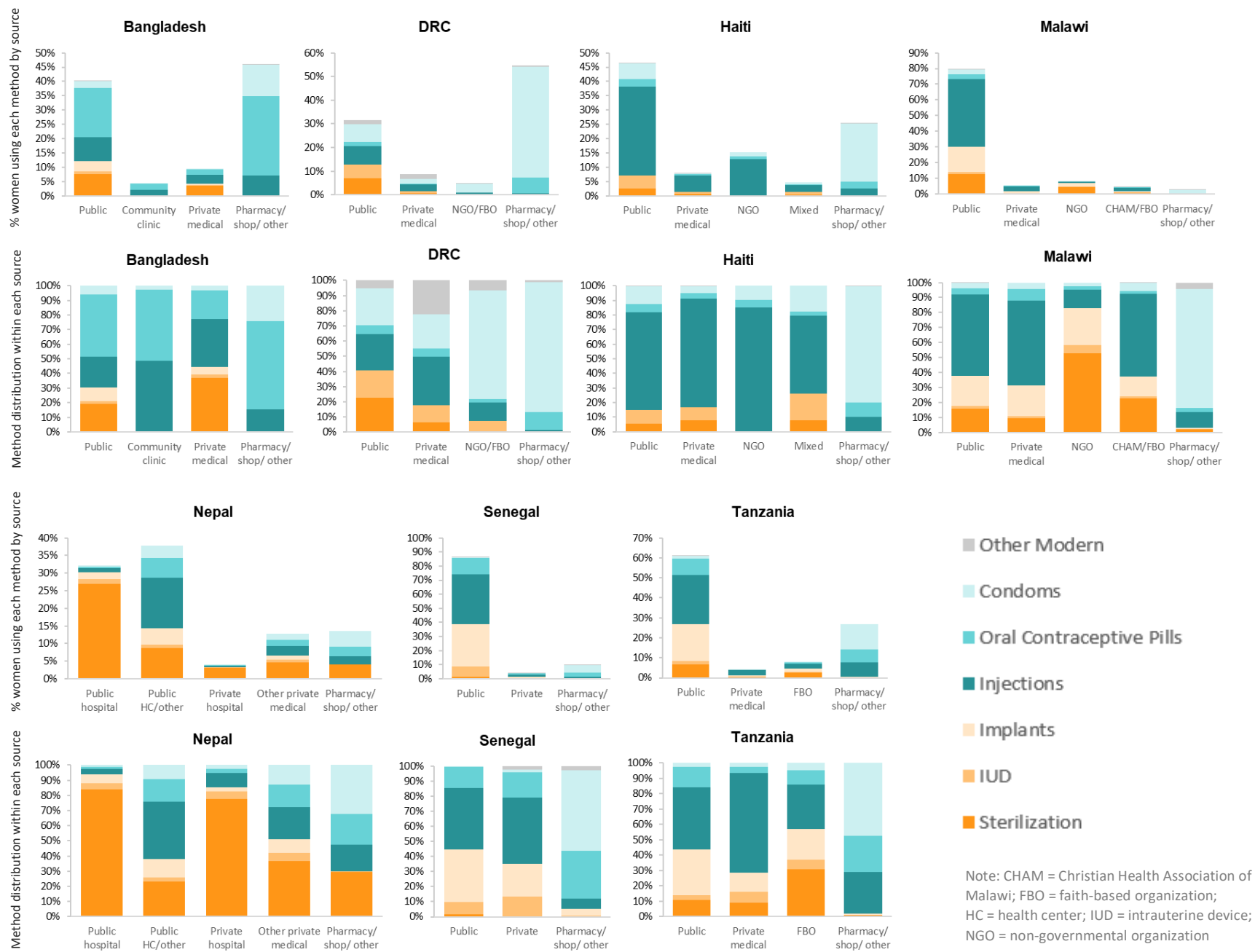
FACILITY AND FP CLIENT CHARACTERISTICS

Table 1 below shows the sample of the facilities and FP clients drawn from the SPA survey data and analyzed in our study. There were between 657 (Senegal) and 1,377 (Bangladesh) facilities providing FP services across the countries that participated in the survey. In Haiti and Malawi, the SPA is a full census of all facilities in the country while in the remaining countries it is a representative sample. Client samples were much smaller in some countries, ranging from 152 total clients in the DRC to 1,035 clients in Tanzania. In particular, there were very few (under 25) clients observed at private for-profit facilities in the DRC, at private hospitals in Nepal, and at private facilities in Senegal.

Appendix Table 2 shows a comprehensive list of characteristics of the facilities and clients analyzed. In most countries, a greater share of private facilities was located in urban areas than for public facilities, and there were more hospitals managed privately than by the government. There were more FP clients at public facilities who were under age 20 than at private facilities.

TABLE 1. FACILITY AND CLIENT SAMPLE CHARACTERISTICS

	Facilities with FP Services		FP Clients	
	N	%	N	%
Bangladesh 2017				
Public	360	26.2	0	0
Community Clinic	936	68.0	0	0
Private	81	5.9	0	0
Total	**1,377**	**100.0**	**0**	**0**
DRC 2017-18				
Public	627	65.7	97	63.6
Private For-Profit	131	13.8	20	12.8
Private Nonprofit/FBO	196	20.5	35	23.5
Total	**954**	**100.0**	**152**	**100.0**
Haiti 2017-18				
Public	323	42.7	597	51.1
Private For-Profit	187	24.8	200	15.5
Private Nonprofit	94	12.4	118	12.9
Mixed	152	20.2	225	20.5
Total	**756**	**100.0**	**1,139**	**100.0**
Malawi 2013-14				
Public	451	55.7	1,046	80.4
Private For-Profit	218	26.9	169	6.2
Private Nonprofit	47	5.8	114	3.2
CHAM/FBO	93	11.5	147	10.2
Total	**809**	**100.0**	**1,476**	**100.0**
Nepal 2015				
Public Hospital	21	2.3	44	13.0
Other Public	849	5.4	499	84.8
Private Hospital	49	92.3	13	2.2
Total	**919**	**100.0**	**555**	**100.0**
Senegal 2019				
Public	276	91.2	459	97.3
Private	27	8.8	17	2.7
Total	**657**	**100.0**	**476**	**100.0**
Tanzania 2014-15				
Public or Parastatal	829	87.5	889	86.1
Private For-Profit	57	6.0	70	5.9
FBO	62	6.5	77	8.0
Total	**947**	**100.0**	**1,035**	**100.0**

Note: FP = family planning; FBO = faith-based organization; CHAM = Christian Health Association of Malawi

STRUCTURAL, PROCESS, AND OUTCOME QUALITY

Figures 3a-3c below show overall structural, process, and outcome quality of care scores after controlling for facility and FP client characteristics. Across the countries, overall structural quality scores (Figure 3a) vary little across and within countries. Community clinics in Bangladesh, private for-profit facilities in Haiti and Malawi, and private facilities in Senegal all had low scores of 69. Public hospitals in Nepal had the highest overall score of 79. For overall structural quality scores, some types of private facilities scored significantly lower than public facilities, for example: private for-profit facilities in Malawi, private hospitals in Nepal, and private facilities in Senegal.

FIGURE 3A. OVERALL STRUCTURAL QUALITY
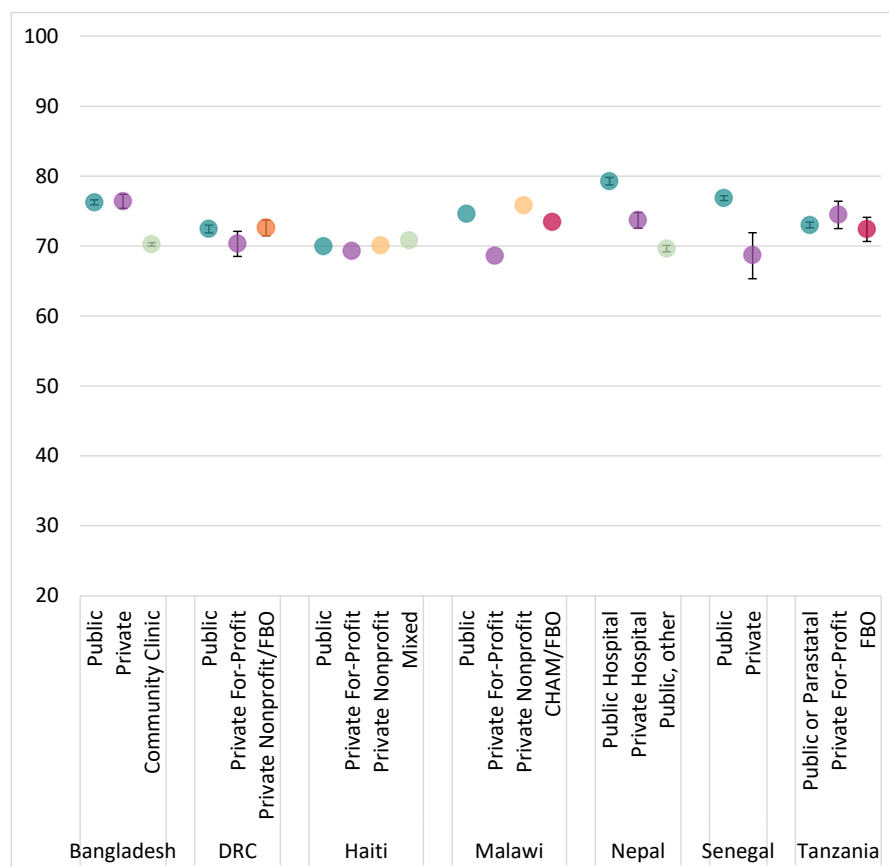
Note: CHAM = Christian Health Association of Malawi, DRC = Democratic Republic of Congo, FBO = Faith-based organization or facility. Estimates based on predicted scores after adjusting for facility type and urban or rural location.

There was large variation in process quality across countries (Figure 3b), with facilities in Nepal scoring lowest (35 in public hospitals, 34 in other public facilities, and 30 in private hospitals). Facilities in the DRC had the highest scores (65 in public facilities, 68 in private for-profit facilities, and 69 in private nonprofit/faith-based facilities). Except in Malawi, where marginally significant differences emerged comparing public facilities with private nonprofit facilities, no differences emerged for overall process quality amongst the other countries. In most countries, there is substantial room for improvement in provision of FP services, regardless of managing authority.

FIGURE 3B. OVERALL PROCESS QUALITY

Note: CHAM = Christian Health Association of Malawi, DRC = Democratic Republic of Congo, FBO = Faith-based organization or facility. Estimates based on predicted scores after adjusting for client status (new or returning client), clinical method use, client age, and client education.

For outcome quality, there was less variation across and within countries. Scores were universally high, ranging from 81 in private hospitals in Nepal to 95 in private for-profit facilities in the DRC and private facilities in Senegal. The differences within each country were only marginally significant. In Malawi, there was a higher outcome quality score for clients attending CHAM and faith-based facilities compared with public facilities, but there were no differences comparing different types of private facilities with each other. Clients from other public facilities in Nepal reported higher outcome quality compared with both public and private hospitals. Clients in Tanzania at faith-based facilities reported significantly higher outcome quality than clients in public or parastatal facilities.
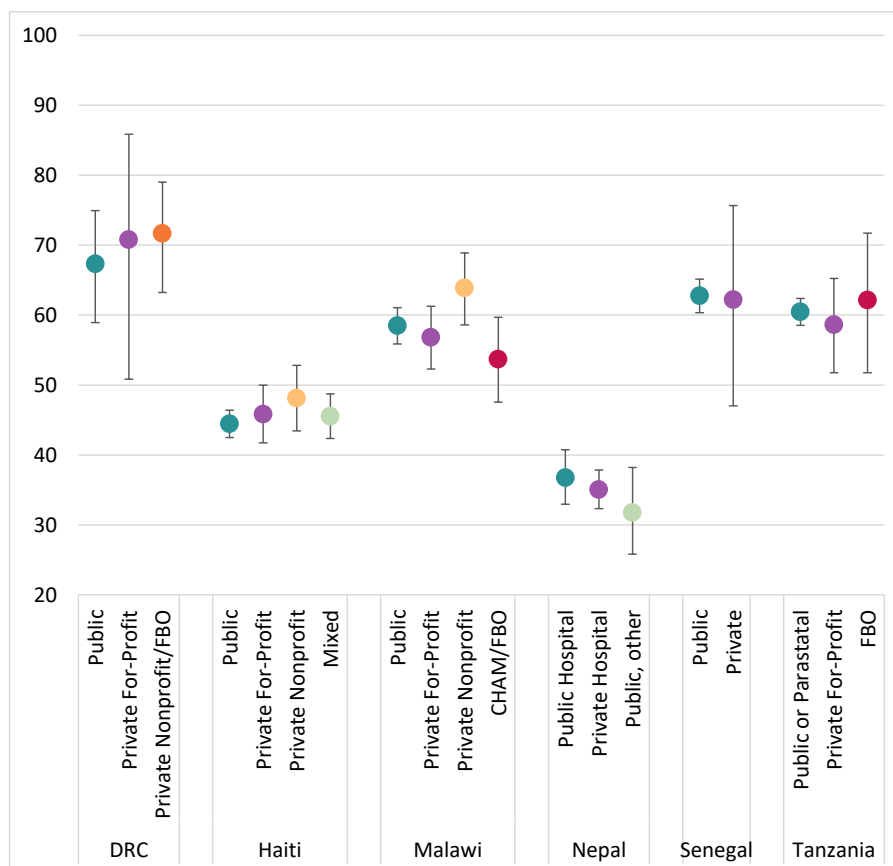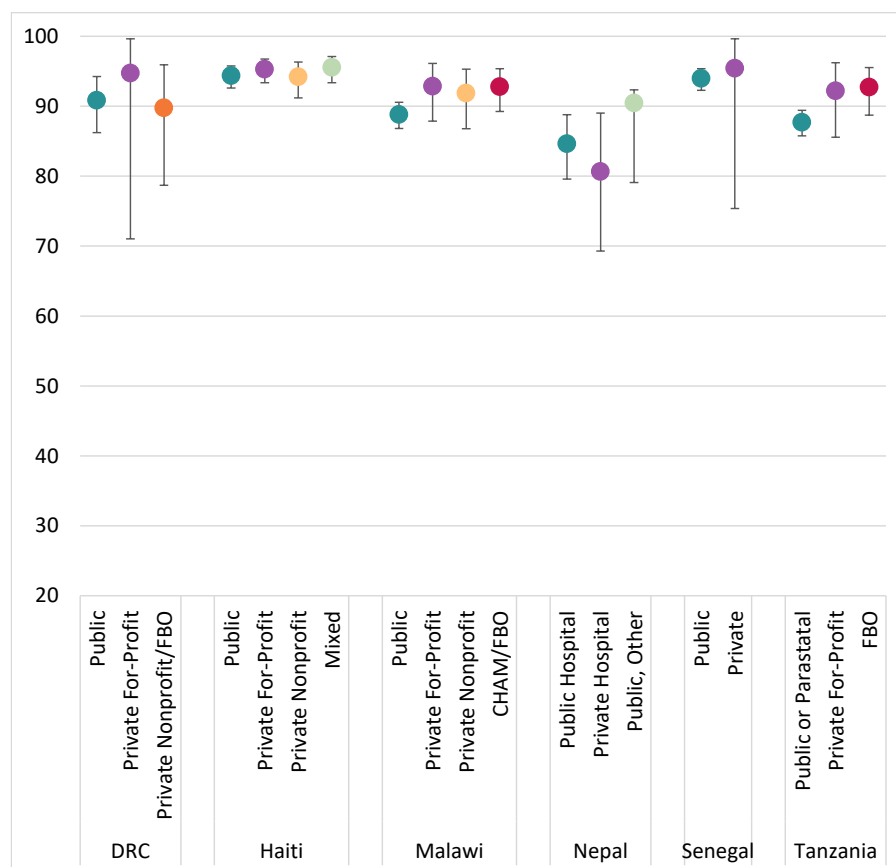
FIGURE 3C. OVERALL OUTCOME QUALITY

Note: CHAM = Christian Health Association of Malawi, DRC = Democratic Republic of Congo, FBO = Faith-based organization or facility. Estimates based on predicted scores after adjusting for client status (new or returning client), clinical method use, client age, and client education.

STRUCTURAL QUALITY DOMAINS

Figure 4 below shows the domain-specific scores for each country by managing authority after controlling for facility type and urban or rural location. While there were inconsistencies within and across countries by each domain score, the management domain was lower in private facilities in most (5 out of 7) countries compared with public, especially in private for-profit facilities. Choice of methods (at least one method type each of long-acting, short-acting, and barrier) was also higher in public facilities than private facilities in three out of the seven countries.

In Bangladesh, public facilities scored higher than private facilities for choice of methods, while community clinics, which have less of a mandate to provide a broad range of FP services, had the lowest score for choice of methods. Also, private facilities in Bangladesh scored higher than public for infrastructure (both generally and for FP services specifically). In the DRC, there were no differences for most structural domains except the management domain, where private for-profit facilities scored lower than both public and nonprofit/FBO. Similarly in Haiti, for-profit facilities had the lowest score for management. In Malawi, private for-profit facilities were lowest for choice of methods, constellation of services, and management. Conversely, nonprofit facilities had the highest score overall in the country and for all domains (except constellation of services). There was more substantial variation in Nepal. Public hospitals scored considerably higher for choice of methods, and higher on all other domains except facility infrastructure, where public and private hospitals were more aligned. In Senegal, public facilities scored higher for the choice of methods domain, and for management. Notably, in Senegal, only 50% of private facilities had a choice of methods available. However, it is important to note this category includes only 27 facilities total, and this domain score for private facilities is skewed by low provision or availability of long-acting or permanent methods specifically (results not shown). In Tanzania, public or parastatal facilities had a higher score for constellation of services but lower scores for infrastructure (both generally and for FP services specifically).

Appendix Tables 3a-3g show the percentage of facilities with each item from which the structural quality scores were based. There is wide variation across countries; however, a few items scored consistently higher or lower in public facilities. In all countries, a higher share of public sector facilities had a system for reviewing management/administration issues (routine meetings to review issues) as compared to private for-profit facilities. The same was true with regard to having FP guidelines on site. Conversely, in all countries a higher share of private for-profit facilities (the DRC, Haiti, Malawi, Tanzania) or all private facilities (Bangladesh, Nepal, Senegal) had toilets, a telephone, and a light in the exam room. The magnitude of differences varies widely across countries.

FIGURE 4. STRUCTURAL QUALITY, DOMAIN SCORES

Haiti

Malawi

Choice of methods | Constellation of services | Management | Facility infrastructure | FP infrastructure

Public | Private For-Profit | Private Nonprofit | Mixed (Haiti) / CHAM/FBO (Malawi)

Nepal

Senegal

Tanzania

	Choice of methods			Constellation of services			Management			Facility infra-structure			FP infra-structure		
	Public or Parastatal	Private For-Profit	FBO	Public or Parastatal	Private For-Profit	FBO	Public or Parastatal	Private For-Profit	FBO	Public or Parastatal	Private For-Profit	FBO	Public or Parastatal	Private For-Profit	FBO

Note: CHAM = Christian Health Association of Malawi, DRC = Democratic Republic of Congo, FBO = Faith-based organization or facility, FP = family planning. Estimates based on predicted scores after adjusting for facility type and urban or rural location.

Quality of FP Care in Public and Private Facilities using Survey Data

PROCESS QUALITY DOMAINS

Although there were not large differences in overall process quality by managing authority in each country, there were some differences by domain across countries (Figure 5). For example, in the DRC, private for-profit facilities had the highest score for client-provider relations. In Haiti, there were no differences overall or by domain. In Malawi, private nonprofit facilities had the highest overall process quality, significantly higher than the other two private facility types (for-profit and CHAM/FBO). Similar differences were seen in Malawi for four domains: method choice, technical competence, information given to clients, and client-provider relations. In Nepal, there were largely no differences for overall process quality; however, for client-provider relations, private hospitals scored higher than public hospitals or other public facilities. In Senegal (and in private facilities in the DRC and Nepal as well), there were no differences overall and across domains—the very few clients at private facilities adds a substantial uncertainty to the estimates and results should be interpreted with caution. In Tanzania, only technical competence differed by facility type—faith-based facilities scored significantly higher than public or parastatal facilities.

Appendix Tables 4a-4f show the percentage of clients receiving or reporting each aspect of care from which the process quality scores were based. Outcome quality is also included in these tables. No consistent patterns were found in differences between public and private facilities by individual indicators.

FIGURE 5. PROCESS QUALITY, DOMAIN SCORES
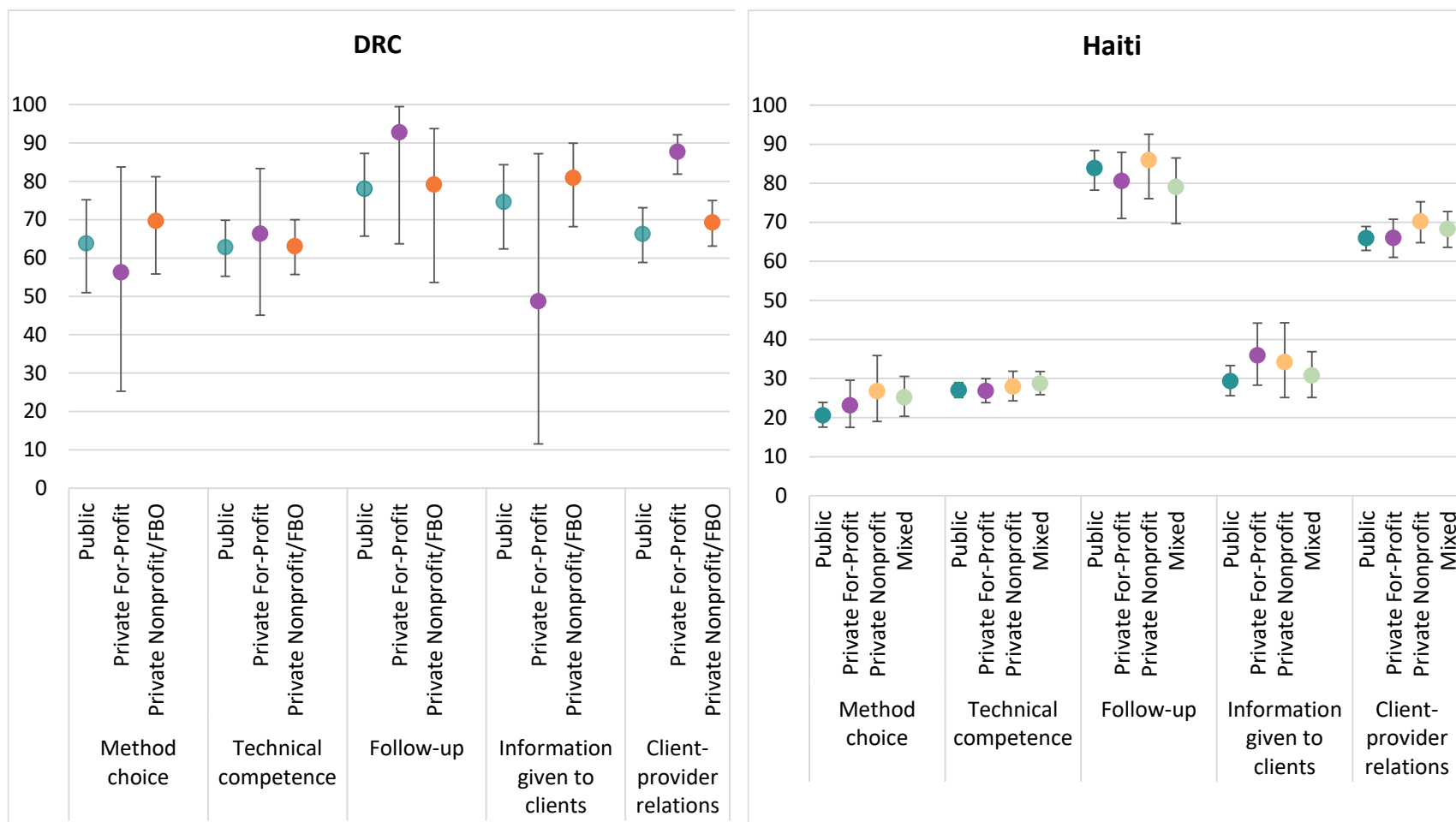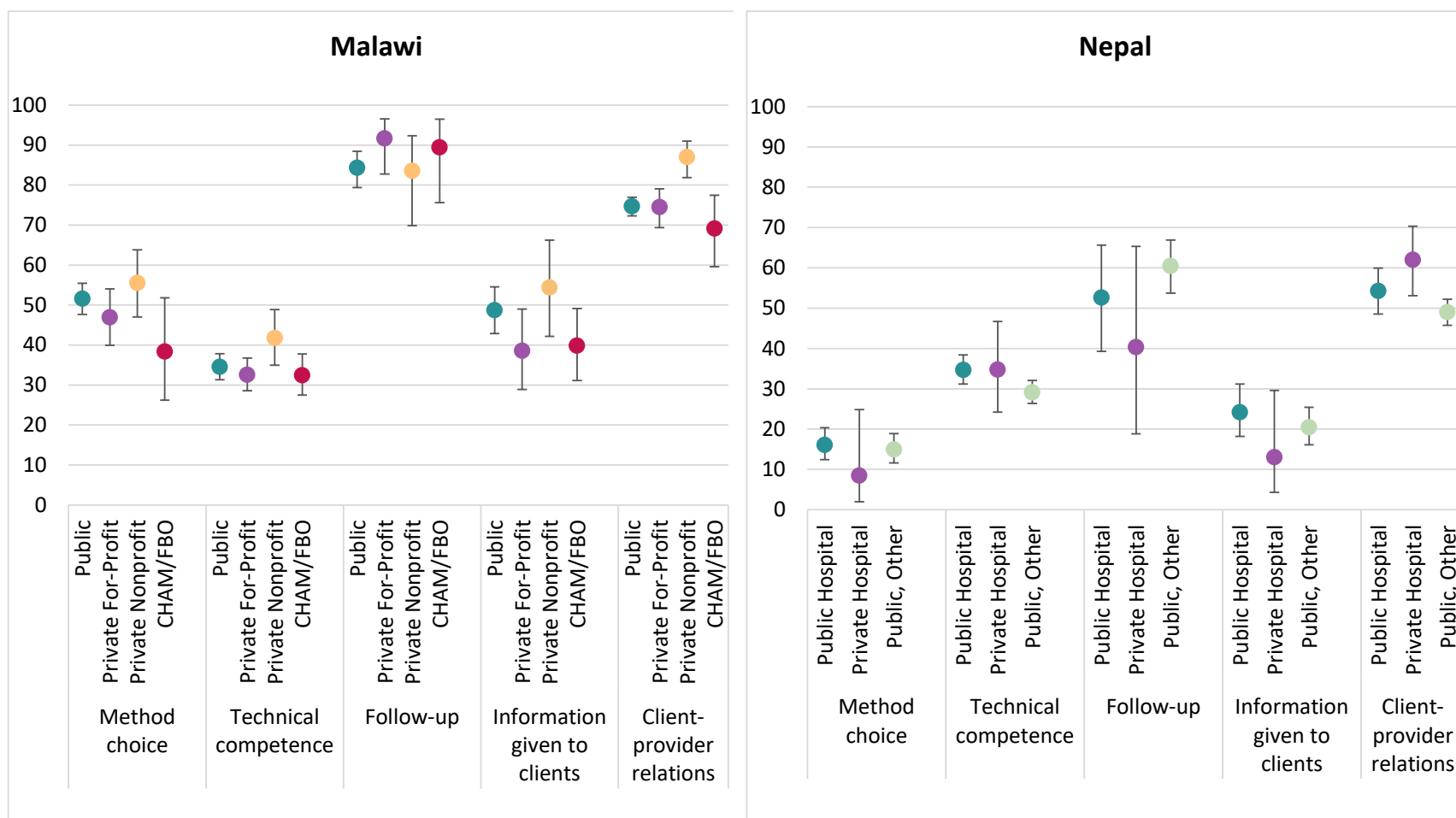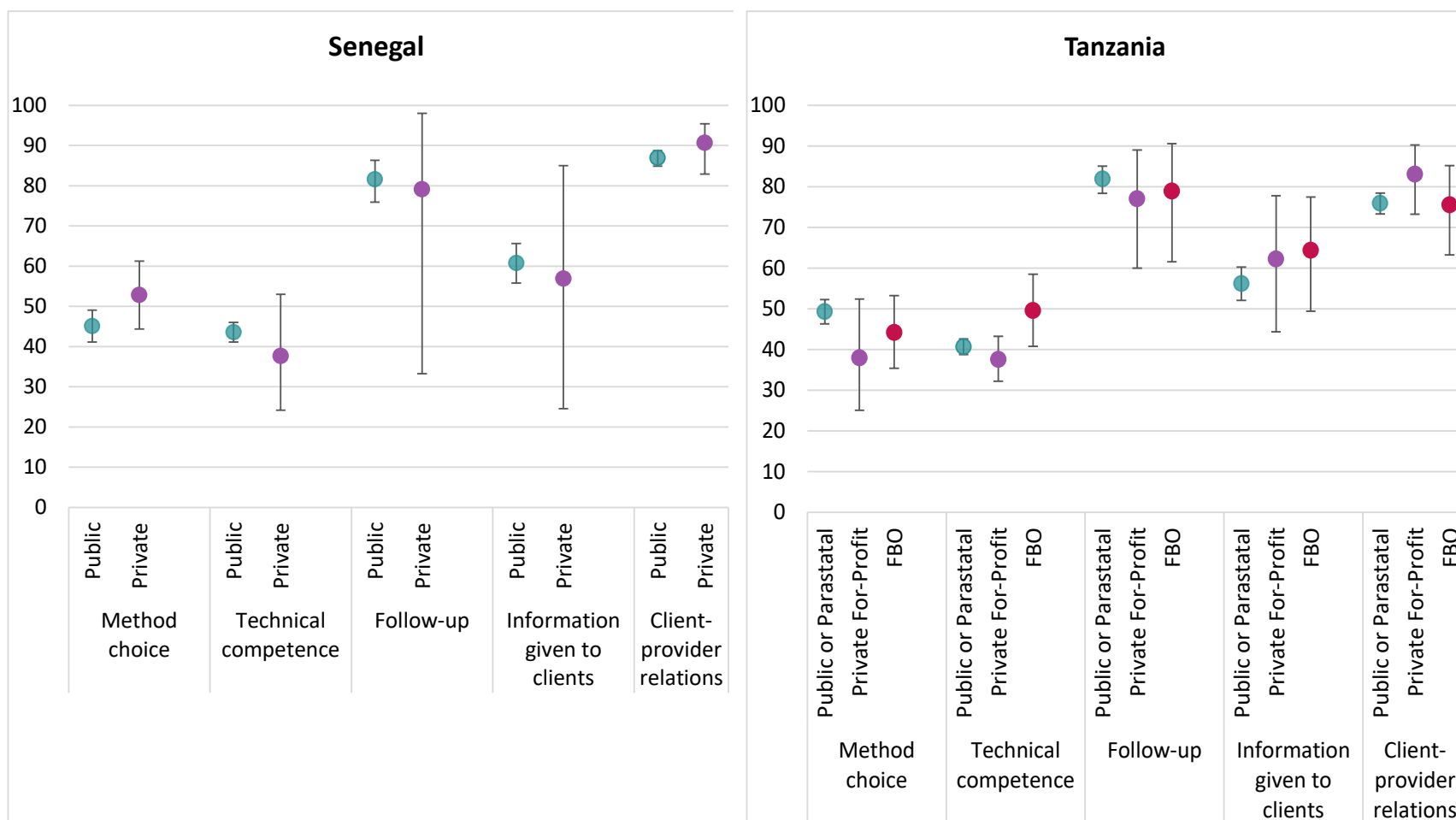
Malawi

Nepal

Senegal

Tanzania

Note: CHAM = Christian Health Association of Malawi, DRC = Democratic Republic of Congo, FBO = Faith-based organization or facility. Estimates based on predicted scores after adjusting for client status (new or returning client), clinical method use, client age, and client education.
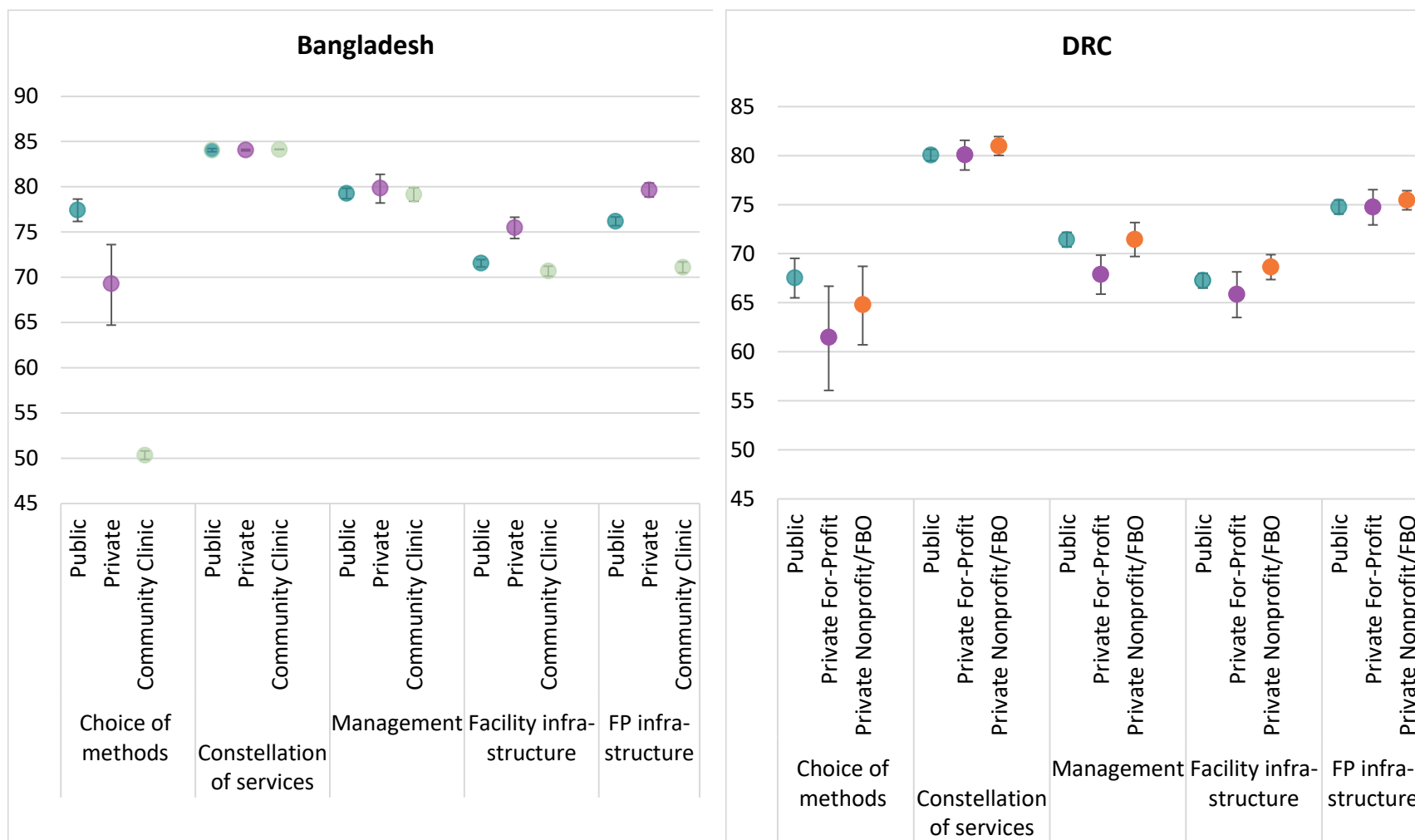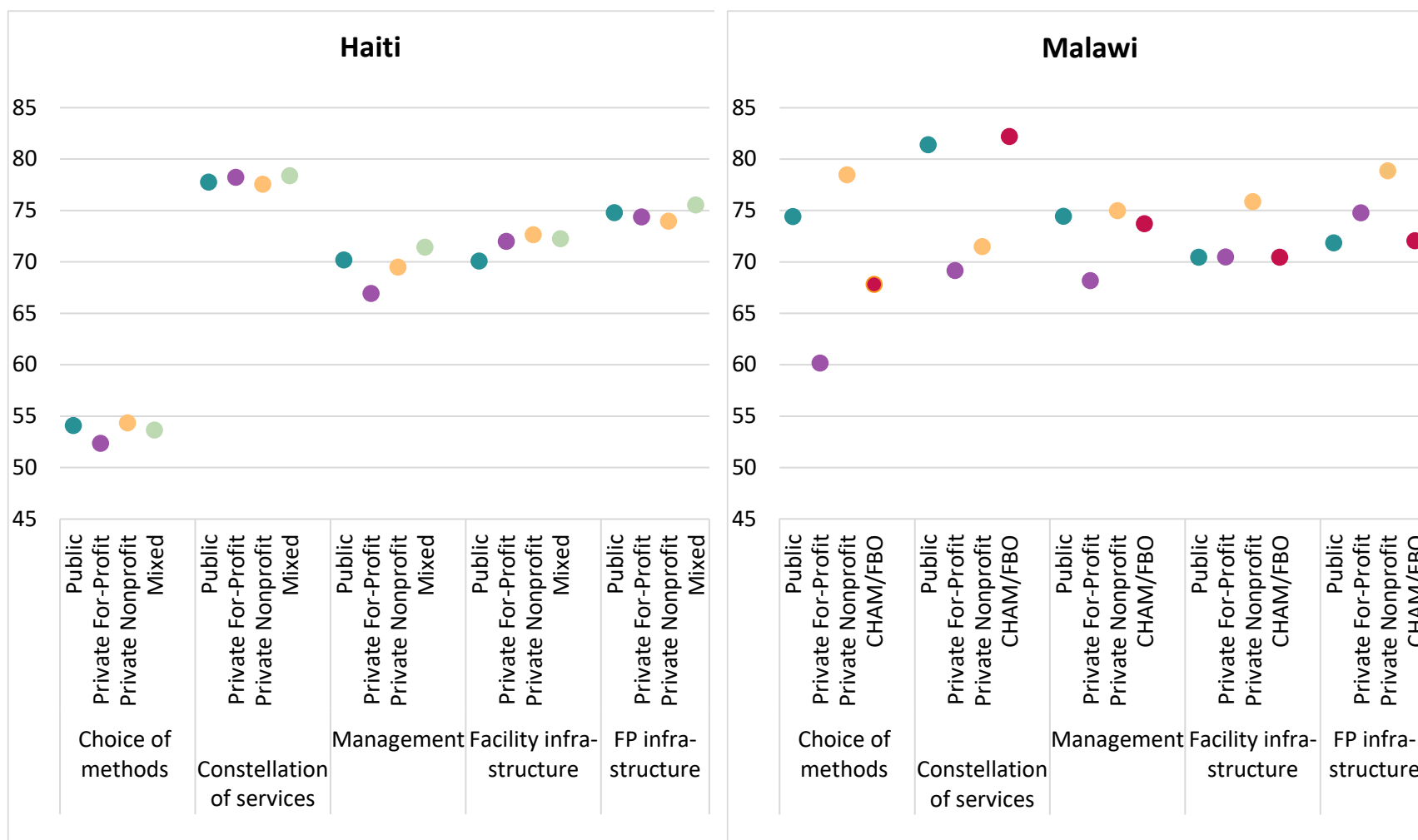
OUTCOME QUALITY

Overall outcome scores, as described above (Figure 3c), are consistently high across countries and by managing authority. Although there are no sub-domains for this component of quality, one indicator used to calculate outcome quality was perceived problem with wait time. There tended to be higher proportions of clients in almost all countries reporting they had no problem with wait time at private facilities compared with clients at public facilities; however, the differences were not statistically different as there were likely too few clients to detect a difference.

DISCUSSION

Leveraging the private sector's reach and capacity is often considered a promising, or even necessary, approach to expanding access to high quality healthcare for services such as FP. Evidence shows that the private sector often meets women's needs for anonymity, proximity, convenience, choice, or other motivations.[6,16] With limited available or definitive evidence of the comparative quality of FP services delivered by the private sector, the broad assumption is often that clients may prefer the care they receive in private facilities for different reasons, but the quality is likely variable—or at worst, deficient or dangerous. While the formal private sector as defined by the SPA provides a similar mix of methods as in the public sector, our findings indicate that broadly, the formal private sector plays a substantially smaller role in providing methods than public facilities. Nonetheless, we show that private sector quality of care is often equivalent to what is provided and available in public sector facilities—especially for process quality— although each sector has strengths and weaknesses which vary across the settings examined in this analysis. Despite disaggregating private facilities where possible, such as by for-profit or nonprofit, there were not clear or generalizable differences within the formal private sector. Overall, process quality was particularly low for all sectors, especially for counseling around method choice, information given to clients, and for technical competence. This suggests a need at a system level – across both public and private sector providers – for training that incorporates an emphasis on supportive and respectful counseling methods as well as support investments such as more regular and intensive coaching and supervision cycles.

Some of our findings under structural quality align with other studies that found quality of care to be comparatively weaker in certain private sector settings.[15–17] Structural quality was lower in some types of private facilities in Malawi, Nepal, and Senegal. Scores for management—including presence of supervision, administrative support systems, or a well-managed stock of contraceptives—and availability of a choice of methods were lower in private facilities in most countries, but infrastructure scores tended to be higher in most countries. Unlike in the public sector, private facilities' ability to function sustainably as a business, and subsequently to maintain the required inputs, systems and infrastructure needed to deliver basic standards of care, can impact the overall quality of care they deliver. Social franchising has been one approach to strengthening these quality domains by providing centralized management, training, and support to improve service delivery, although there are cost, sustainability, and effectiveness considerations in choosing the optimal mix of that support.[21]

Other approaches include strengthening professional or business associations to aggregate providers and provide support and guidance to them, such as dissemination of quality standards, implementation of quality assurance and improvement programs, or advocacy with public counterparts on the private sector's behalf.[29] However, there is not yet a definitive evidence base showing a link between aggregator-focused approaches

and strengthened structural quality. With the increase of private facilities engaged within social health insurance systems, some programs have also explored intensive quality improvement support for private providers to secure accreditation under public purchasing schemes. However, a recent randomized control trial in Tanzania shows that one well-known example of this approach, SafeCare—which seeks to improve both structural and process quality—did not significantly improve quality as measured by infection prevention and control practices or correct management of select patient cases.[30] While the evidence is still mixed on which approaches result in sustainable positive impacts on quality in the private sector, our analysis shows there is nonetheless a demonstrated and continuing need for support and improvement amongst these providers in structural measures of quality.

Despite the structural differences found in this study, overall process quality was more similar across facility managing authority, although client-provider relations were higher in some types of private facilities in the DRC, Malawi, and Nepal. The lack of more consistent differences may be due to a range of reasons, including small sample sizes, imprecise measurement in some private facilities, or that there is cross-over among providers between facilities through dual practice or "moonlighting."[7]

There is qualitative evidence that supports our findings that there are certain benefits to accessing FP services and products at private facilities. In a small study in an urban settlement in Kenya, women cited preference for private facilities for FP care; these preferences were driven by perceived convenience, lower wait times, and more respectful care, although they perceived overall counseling and technical competence to be better at public facilities that were not profit-driven.[6] In another qualitative study in Ghana and Kenya, similar themes emerged, where clients expressed preference towards public facilities, especially hospitals, due to greater availability of services and lower cost compared with private facilities, but that public facilities have longer wait times.[23] Unlike this and other past research,[16,22] client satisfaction and other measures of outcome quality in our analysis were similar across managing authority in most countries. Although private facilities may cost more, clients have noted in other research that the time saved from waiting for care results in less wages lost from time away from work, and that perceived improved quality is used to justify the cost.[24] Our outcome quality measure included one item reflecting wait time. However, while wait time was often lower at private facilities, this did not significantly vary by facility managing authority—although this could be a result of small sample sizes in private facilities.

Further, the seemingly paradoxical findings that both sectors saw low FP service quality scores at the same time as universally high client experience scores may indicate that the clients interviewed may not have had a clear understanding of, or had clear expectations for, the fundamental standard of care against which the SPA survey assesses facilities. Many LMIC countries have committed to providing basic health care services and standards of quality, including for FP, through legislation and other government-endorsed guidelines such as health sector strategic plans, essential medicines lists and essential health services or benefits packages. Often, for various reasons, these plans are not equipped or resourced to deliver on what is promised.[31] Empowering a client with an awareness and understanding of their country-specific standards is part of a rights-based perspective or approach, where citizens are supported to better understand what is outlined in these commitments so that they may choose to act as change agents in constructively holding their institutions and health systems accountable.[32] This approach also aligns with the fundamental principles of informed choice; ensuring FP clients have access to correct and comprehensive information, as well as a wide choice of methods, is vital for ensuring that consent is truly informed and voluntary. Often, a country specifically enumerates the information and methods that should be provided as part of informed choice to perspective FP clients in government health documents like strategies, frameworks, and guidelines.

Possible programmatic interventions to address these information gaps include citizen or patient charters, broad information sharing through campaigns, and developing and sharing community scorecards.[33, 34] More

formative research to better understand clients' baseline expectations of care may also be needed to inform the size of the information gaps that these possible interventions may address. In the context of this analysis, implementers could share SPA survey indicators and corresponding local SPA scores in community campaigns to raise awareness of what standards of care FP clients should – and actually do – receive. Beyond information sharing, approaches like participatory budgeting, public expenditure tracking, and health committees have shown promise in promoting accountability of health system and institutional actors.[33] Though definitive evidence is still emerging, expanding provider training beyond clinical competence and regulatory compliance to include concepts of people-centered care may also positively impact FP service delivery quality at the individual facility level.[35]

STRENGTHS AND LIMITATIONS

Our analysis allows for a comprehensive, standardized comparison of multiple domains of FP quality of care across a variety of LMICs that controls for confounding factors that could influence our understanding of the relationship between quality and ownership. We add to the knowledge base around strengths and weakness in the private (as well as public) sector by summarizing critical aspects of quality of care. The intent is to provide targeted information for program managers and policy makers. By drawing from facility inventories, observation of client visits, and client exit interviews, this work provides a multi-dimensional and objective assessment of service quality. The statistical method employed allows for comparisons between sectors that control for differences in facility and client type, allowing for a more nuanced understanding of differences between sectors. This is especially important given structural differences and differences in the types of clients served between public and private providers in many countries.

Our study also has some limitations to note. First, SPA surveys only collect data from health facilities defined as formal, which, as noted above, means our analysis does not capture the source for FP for a substantial portion of women across countries—particularly for women using short-acting methods sourced from private outlets like pharmacies and shops. Thus, findings about private sector quality of care from this analysis cannot be applied to the private sector in its entirety. Relatedly, the findings cannot be generalized to outside of the set of countries studied, and we are only able to analyze a small set of countries. Through household surveys, a larger set of countries could have been used to evaluate a proxy of quality of care—the Method Information Index (MII). However, we limited our analysis to countries with largely standardized health facility data in order to provide a more comprehensive assessment of quality of care across multiple domains of care using a robust set of indicators. Nonetheless, despite the SPA operating from a set of standardized questionnaires, implementing countries can modify, add, or remove questions. For example, in the DRC and Nepal, assessment of provider discussion of smoking, sexually transmitted infections, and chronic illness were not included in the survey. Given the large set of indicators involved, this is not likely to influence the scores substantially; however, between-country comparisons should also be made in light of missing information on a small set of indicators.

However, another limitation was that even though SPA surveys are unique in their collection of both facility- and client-level data, samples of clients are small at private facilities in particular, making it difficult to draw meaningful comparisons. Additionally, our study did not examine cost of care, or client perception of costs being problematic, which could provide more insight about this aspect of care. This is an important aspect to healthcare delivery that should be considered in future studies, given its importance in comparing private and public services and implications for equity.[25] There are a number of other limitations related to assessing quality of care using SPA surveys that are documented in detail in existing literature, for example: that counseling is only assessed among clients who left with a method,[26] that the Hawthorne effect is present with observations of visits,[27] and that courtesy bias may influence client reporting in exit interviews.[28] In

other words, these limitations suggest quality of care may be overestimated due to various factors, including: observation data omits clients who did not receive good counseling and thus left without a method and were not interviewed; providers conduct more thorough counseling sessions given that they are under observation; or clients report the provider's actions more favorably due to courtesy bias.

Further, the invariably high outcome scores reflecting client-reported satisfaction and related indicators reflect the need to develop better, more specific measures of the client experience. This is not a challenge that is unique to the SPA survey, as the limitations of current client experience measurement methodologies are widely acknowledged.[36] Recently, several scales have been proposed to better measure the client's experience of various aspects of FP service delivery—the Interpersonal Quality of Family Planning (IQFP) Scale, the Quality of Contraceptive Counseling Scale, and the Person-Centered Family Planning (PCFP) Scale—which all have promising results but also limitations as well.[36] Additionally, the DHS Program is currently in the process of revising the SPA questionnaire to better address this issue, such as adapting questions related to respectful care.

CONCLUSION

In sum, we found few and inconsistent differences in the three different aspects of quality–structure, process, and overall outcome—between the public sector and formal private sector facilities included in the SPA. These general findings may corroborate assumptions in the FP community of practice that FP clients' perceptions of higher quality of care in the private sector is not supported by the reality. However, looking more closely at the individual domains that make up each index, the picture becomes more nuanced. First, our findings related to structural quality—particularly for management and availability of method choice—substantiated the private for-profit sector's continuing need for practical and operational support, through approaches like social franchising, or by introducing and capacitating private sector aggregators like private health associations or membership networks. Second, while there were fewer differences for process quality, we saw that some domains, like client-provider relations, scored higher in private facilities, although again the results were not consistent across countries. Importantly, the process quality findings showed that, specifically related to quality of care in FP service delivery, the public sector scores are similarly low to those of private sector facilities. Consequently, the findings clearly show there is substantial room for improvement in quality of care for FP services across both sectors. Last, outcome scores for both public and private providers, which are measured through client exit interviews alone, were universally high. This indicates that for this sample, assumptions that clients tend to perceive a higher standard of care in the private sector than in the public sector is not necessarily true. Further, the finding suggests that not only are better, more accurate methodologies for measuring client experience and satisfaction needed, but that using a rights-based perspective to further support clients to elevate their expectations of, and their ability to examine, the care they receive may be equally necessary.

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APPENDIX

APPENDIX TABLE 1. QUALITY OF CARE INDICATORS

Donabedian component	Domain	Indicator	FI	HW	OB	EX
Structure Process	Choice of methods	Mix of methods provided and currently available	X			
		Provider mentioned two or more FP methods				X
		Provider asked about client's method of choice				X
Structure	FP integration/ constellation of services	With antenatal care services	X			
		With postnatal care services	X			
		With sexually transmitted infection services	X			
		With HIV counseling & testing services	X			
		With prevention of mother to child transmission services	X			
Structure	Management	System for reviewing management/administrative issues	X			
		System to obtain client opinions	X			
		Supervision in the last 6 months	X			
		Inventory of contraceptive supplies	X			
		Stock organized by expiration date	X			
Structure	Facility infrastructure, General	Contraceptives protected from water, sun, pests	X			
		Electricity	X			
		Water	X			
		Toilet	X			
		Telephone	X			
		Waiting area (protected)	X			
Structure	Facility infrastructure, FP	Quality assurance measures in place	X			
		FP services provided 5 days per week	X			
		Private exam room	X			
		Blood pressure cuff	X			
		Speculum	X			
		FP guidelines	X			
		Table and Stool (bed or couch?)	X			
		Light	X			
		Soap	X			
		Gloves	X			
		Decontamination solution	X			
		Sharps box	X			
		At least one trained FP provider		X		
Process	Technical/ Provider competence	Client card			X	
		Last delivery date assessed			X	
		Pregnancy status assessed			X	
		Breastfeeding status assessed			X	
		Menstrual cycle regularity assessed			X	
		Age of client assessed			X	
		Current number of children assessed			X	
		Desire for more kids assessed			X	
		Desired timing for next child assessed			X	
		Blood pressure measured			X	
		Weight measured			X	
		Smoking habits assessed			X	
		STI symptoms assessed			X	
		Chronic illnesses assessed			X	
Process	Follow-up	Provider informed client when to return			X	X
Process	Information given to client	Explains how to use the selected method			X	X
		Explains side effects of selected method			X	X
Process	Client-provider relations	Staff treated client very well				X
		Provider asked if client had any questions or concerns			X	
		Client felt comfortable asking questions during the visit				X
		Provider assured client of confidentiality			X	
		Client had visual privacy			X	X
		Client had audio privacy			X	X
Outcome	Client experience	Wait time was not a problem				X
		Very satisfied with services				X
		Would recommend to a friend				X

EX = exit interview; FI = facility inventory; FP = family planning HW = health worker interview; OB = observation protocol

APPENDIX TABLE 2. FACILITY AND CLIENT SAMPLE CHARACTERISTICS

| | Facilities with FP Services | | | | FP Clients | | New clients | Clinical method | Post-primary education | Clients < 20 years |
| | Total | | Urban | Hospital | Total | | | | | |
	N	%	%	%	N	%	%	%	%	%
Bangladesh 2017										
Public	360	26.2	7.9	1.1						
Community Clinic	936	68.0	0.0	0.0						
Private	81	5.9	72.5	30.0						
Total	**1,377**	**100.0**	**6.3**	**2.0**						
DRC 2017-18										
Public	627	65.7	9.5	7.4	97	63.6	62.3	81.4	53.3	9.5
Private For-Profit	131	13.8	70.3	15.5	20	12.8	66.5	63.9	40.3	0.6
Private Nonprofit/FBO	196	20.5	29.1	20.4	35	23.5	65.5	76.8	46.6	9.5
Total	**954**	**100.0**	**21.9**	**11.2**	**152**	**100.0**	**63.6**	**78.1**	**50.1**	**8.4**
Haiti 2017-18										
Public	323	42.7	27.2	14.2	597	51.1	27.3	80.6	53.8	7.1
Private For-Profit	187	24.8	40.2	9.1	200	15.5	29.2	75.4	57.8	5.4
Private Nonprofit	94	12.4	35.1	8.5	118	12.9	32.5	81.5	58.3	6.9
Mixed	152	20.2	31.4	5.9	225	20.5	28.5	83.0	61.2	5.2
Total	**756**	**100.0**	**32.2**	**10.6**	**1,139**	**100.0**	**28.5**	**80.4**	**56.5**	**6.4**
Malawi 2013-14										
Public	451	55.7	13.3	10.5	1,046	80.4	27.2	90.7	22.3	8.8
Private For-Profit	218	26.9	59.5	7.3	169	6.2	23.8	92.6	27.1	8.7
Private Nonprofit	47	5.8	69.4	0.0	114	3.2	37.9	86.3	42.1	6.5
CHAM/FBO	93	11.5	15.9	16.7	147	10.2	31.9	91.5	20.3	14.2
Total	**809**	**100.0**	**29.3**	**9.7**	**1,476**	**100.0**	**27.8**	**90.8**	**23.0**	**9.2**
Nepal 2015										
Public Hospital	21	2.3	na	na	44	13.0	24.7	82.2	69.7	1.0
Other Public	849	5.4	na	na	499	84.8	18.3	79.2	53.0	3.3
Private Hospital	49	92.3	na	na	13	2.2	29.2	79.8	88.2	0.0
Total	**919**	**100.0**	na	na	**555**	**100.0**	19.4	79.6	56.0	**2.9**
Senegal 2019										
Public	276	91.2	76.3	1.3	459	97.3	23.8	71.4	21.7	6.8
Private	27	8.8	94.5	19.9	17	2.7	27.0	73.4	41.8	2.7
Total	**657**	**100.0**	**77.9**	**2.9**	**476**	**100.0**	**23.8**	**71.5**	**22.3**	**6.7**
Tanzania 2014-15										
Public or Parastatal	829	87.5	13.6	2.7	889	86.1	26.1	75.3	12.3	9.6
Private For-Profit	57	6.0	74.0	6.5	70	5.9	32.6	81.2	34.0	6.5
FBO	62	6.5	30.9	12.4	77	8.0	24.4	78.3	17.2	5.9
Total	**947**	**100.0**	**18.4**	**3.6**	**1,035**	**100.0**	**26.3**	**75.9**	**14.0**	**9.1**

APPENDIX TABLE 3A. STRUCTURAL QUALITY INDICATORS BY MANAGING AUTHORITY, BANGLADESH 2017

Domain	Indicator	Public % [95% CI]	Private % [95% CI]	Community Clinic % [95% CI]	p-value
Choice of methods	Mix of methods provided and currently available	75.6 [71.2,79.4]	55.7 [47.0,64.2]	0.8 [0.2,3.2]	<0.001
FP integration/ constellation of services	With ANC services	99.7 [97.6,100.0]	99.0 [95.4,99.8]	100.0	0.030
	NA- With PNC services				
	NA- With STI services				
	NA- With HTC services				
	NA- With PMTCT services				
Management	NA-System for reviewing management/administrative issues				
	NA-System to obtain client opinions				
	Supervision in the last 6 months	91.4 [88.5,93.7]	82.0 [74.6,87.6]	95.0 [91.7,97.1]	0.001
	Inventory of contraceptive supplies	89.3 [86.3,91.7]	73.5 [66.4,79.6]	86.6 [82.1,90.1]	0.002
	Stock organized by expiration date	62.9 [58.4,67.2]	62.4 [53.1,70.8]	60.7 [54.9,66.2]	0.748
	Contraceptives protected from water, sun, pests	83.9 [80.4,86.9]	79.4 [72.1,85.2]	84.1 [79.5,87.8]	0.529
Facility infrastructure	Electricity	38.3 [34.0,42.8]	86.0 [78.6,91.1]	42.7 [37.0,48.6]	<0.001
	Water	94.1 [91.6,95.9]	99.3 [95.2,99.9]	88.2 [83.9,91.4]	<0.001
	Toilet	84.7 [81.1,87.8]	93.0 [85.5,96.8]	76.6 [71.3,81.2]	<0.001
	Telephone	10.3 [9.2,11.6]	62.3 [53.6,70.3]	0.8 [0.2,2.4]	<0.001
	Waiting area (protected)	98.7 [97.0,99.4]	97.9 [90.8,99.6]	96.5 [93.5,98.1]	0.140
	Quality assurance measures in place	16.7 [13.9,20.1]	44.5 [36.3,53.0]	12.9 [9.5,17.3]	<0.001
FP infrastructure	FP services provided 5 days per week	2.6 [1.5,4.5]	2.0 [0.9,4.0]	15.7 [12.4,19.6]	<0.001
	FP guidelines	68.4 [64.0,72.6]	58.4 [51.9,64.7]	38.1 [32.7,43.9]	<0.001
	Private exam room	80.8 [77.1,84.1]	95.7 [88.9,98.4]	67.4 [61.7,72.6]	<0.001
	Blood pressure cuff	91.1 [87.9,93.6]	97.1 [90.6,99.1]	82.0 [77.1,86.1]	<0.001
	Speculum	76.1 [71.9,79.9]	56.1 [47.8,64.0]	0.7 [0.2,2.9]	<0.001
	Exam bed	88.7 [85.4,91.3]	98.2 [94.6,99.4]	81.8 [76.8,85.9]	<0.001
	Light	54.4 [49.8,59.0]	91.5 [85.0,95.3]	51.4 [45.7,57.1]	<0.001
	Soap or alcohol-based hand rub	74.5 [70.3,78.3]	95.4 [89.9,98.0]	70.9 [65.5,75.8]	<0.001
	Gloves	89.9 [86.6,92.4]	95.6 [88.8,98.3]	78.5 [73.3,82.9]	<0.001
	Decontamination solution	55.8 [51.4,60.2]	85.5 [77.9,90.8]	27.5 [22.6,33.1]	<0.001
	Sharps box	66.2 [61.5,70.6]	76.4 [69.5,82.2]	64.5 [58.6,70.0]	0.124
	At least one trained FP provider	38.4 [34.1,42.9]	43.7 [35.0,52.8]	22.8 [18.4,27.9]	<0.001

Note: ANC = antenatal care; CI = confidence interval; FP = family planning; HTC = HIV testing and counseling; NA = not applicable; PNC = postnatal care; STI = sexually transmitted infection

APPENDIX TABLE 3B. STRUCTURAL QUALITY INDICATORS BY MANAGING AUTHORITY, DRC 2017-18

Domain	Indicator	Public % [95% CI]	Private For-Profit % [95% CI]	Private nonprofit or FBO % [95% CI]	p-value
Choice of methods	Mix of methods provided and currently available	41.2 [36.1,46.6]	42.8 [30.1,56.5]	42.3 [32.8,52.5]	0.965
FP integration/ constellation of services	With ANC services	98.7 [97.1,99.4]	97.9 [88.5,99.7]	97.0 [95.2,98.1]	0.371
	With PNC services	92.8 [89.4,95.2]	88.6 [77.2,94.6]	92.0 [85.7,95.7]	0.512
	With STI services	98.6 [95.7,99.6]	97.3 [84.1,99.6]	99.1 [94.0,99.9]	0.675
	With HTC services	65.3 [60.4,69.9]	87.9 [77.0,94.0]	79.0 [69.6,86.1]	<0.001
	With PMTCT services	60.1 [54.9,65.1]	64.0 [50.1,75.9]	74.8 [64.9,82.7]	0.053
Management	System for reviewing management/administrative issues	82.8 [78.8,86.1]	54.0 [40.7,66.7]	70.4 [60.9,78.5]	<0.001
	System to obtain client opinions	15.3 [11.7,19.9]	11.4 [4.8,24.4]	12.3 [7.3,19.9]	0.630
	Supervision in the last 6 months	95.0 [91.4,97.1]	96.6 [92.7,98.5]	98.2 [92.1,99.6]	0.279
	Inventory of contraceptive supplies	59.3 [54.2,64.3]	32.3 [21.4,45.6]	59.3 [49.3,68.5]	<0.001
	Stock organized by expiration date	37.5 [32.3,43.0]	31.6 [20.9,44.8]	43.1 [33.2,53.7]	0.362
	Contraceptives protected from water, sun, pests	50.1 [45.0,55.3]	50.4 [37.1,63.6]	57.3 [46.8,67.1]	0.502
Facility infrastructure	Electricity	67.0 [61.6,72.1]	62.9 [48.8,75.1]	79.1 [69.1,86.5]	0.074
	Water	43.7 [38.6,49.0]	70.3 [56.1,81.4]	73.6 [63.9,81.4]	<0.001
	Toilet	27.9 [23.2,33.1]	41.7 [29.4,55.2]	30.0 [21.7,39.7]	0.107
	Telephone	6.8 [4.3,10.4]	9.6 [4.3,19.9]	11.4 [6.1,20.3]	0.360
	Waiting area (protected)	86.9 [82.5,90.3]	82.4 [69.4,90.6]	92.0 [83.6,96.3]	0.255
	Quality assurance measures in place	23.2 [19.1,28.0]	18.1 [9.8,31.1]	19.8 [13.9,27.5]	0.564
FP infrastructure	FP services provided 5 days per week	6.3 [4.2,9.4]	0.6 [0.1,3.7]	84.6 [80.1,88.2]	0.221
	FP guidelines	42.1 [36.9,47.4]	32.7 [21.7,46.1]	45.0 [35.1,55.4]	0.310
	Private exam room	89.6 [85.7,92.5]	86.5 [74.9,93.2]	89.9 [80.8,94.9]	0.780
	Blood pressure cuff	83.0 [78.7,86.5]	88.2 [77.4,94.2]	80.4 [70.9,87.4]	0.451
	Speculum	27.6 [23.1,32.5]	38.1 [25.8,52.1]	27.7 [20.2,36.7]	0.248
	Exam bed	69.4 [64.1,74.2]	85.8 [72.9,93.2]	82.9 [74.1,89.2]	0.006
	Light	53.1 [47.8,58.3]	63.9 [50.0,75.8]	56.4 [46.3,65.9]	0.308
	Soap or alcohol-based hand rub	61.2 [55.8,66.4]	60.4 [46.7,72.7]	72.7 [62.5,80.9]	0.137
	Gloves	87.1 [82.9,90.3]	91.1 [79.7,96.4]	91.9 [84.9,95.8]	0.366
	Decontamination solution	47.2 [41.8,52.7]	66.3 [53.0,77.4]	50.4 [40.1,60.6]	0.029
	Sharps box	70.1 [64.8,74.9]	55.7 [42.1,68.6]	72.8 [63.2,80.7]	0.065
	At least one trained FP provider	69.7 [64.5,74.4]	73.1 [59.6,83.3]	77.1 [68.0,84.2]	0.391

Note: ANC = antenatal care; CI = confidence interval; DRC = Democratic Republic of the Congo; FBO = faith-based organization; FP = family planning; HTC = HIV testing and counseling; PNC = postnatal care; STI = sexually transmitted infection

APPENDIX TABLE 3C. STRUCTURAL QUALITY INDICATORS BY MANAGING AUTHORITY, HAITI 2017-18

Domain	Indicator	Public %	Private For-Profit %	Private nonprofit %	Mixed %	p-value
Choice of methods	Mix of methods provided and currently available	14.5	8.0	12.8	9.8	0.134
FP integration/ constellation of services	With ANC services	98.5	95.6	87.2	94.8	<0.001
	With PNC services	92.9	89.7	83.0	87.6	0.030
	With STI services	98.5	98.3	97.9	99.3	0.793
	With HTC services	39.9	60.1	64.9	51.0	<0.001
	With PMTCT services	47.0	43.5	41.5	51.0	0.412
Management	System for reviewing management/administrative issues	53.0	32.1	46.8	51.6	<0.001
	System to obtain client opinions	0.6	2.7	7.4	1.3	0.001
	Supervision in the last 6 months	86.1	66.1	73.4	88.2	<0.001
	Inventory of contraceptive supplies	52.0	45.1	50.0	56.2	0.219
	Stock organized by expiration date	54.2	44.6	58.5	64.7	0.003
	Contraceptives protected from water, sun, pests	72.8	70.9	69.1	77.1	0.494
Facility infrastructure	Electricity	67.2	76.9	83.0	75.8	0.006
	Water	85.4	85.0	84.0	85.0	0.990
	Toilet	47.6	67.7	64.9	58.2	<0.001
	Telephone	11.1	19.4	27.7	22.2	<0.001
	Waiting area (protected)	98.1	96.7	95.7	98.7	0.370
	Quality assurance measures in place	5.2	6.5	4.3	7.8	0.608
FP infrastructure	FP services provided 5 days per week	0.3	2.5	2.8	2.2	<0.001
	FP guidelines	63.1	35.5	43.6	60.1	<0.001
	Private exam room	91.6	87.5	84.0	88.9	0.165
	Blood pressure cuff	90.7	89.8	86.2	92.2	0.472
	Speculum	5.2	5.3	7.4	3.9	0.695
	Exam bed	72.8	77.4	64.9	69.9	0.144
	Light	26.0	41.4	37.2	32.7	0.003
	Soap or alcohol-based hand rub	66.6	75.3	74.5	72.5	0.142
	Gloves	83.0	83.9	83.0	88.9	0.391
	Decontamination solution	69.7	68.8	75.5	73.2	0.571
	Sharps box	94.4	83.8	85.1	96.7	<0.001
	At least one trained FP provider	44.5	44.1	38.3	50.3	0.318

Note: ANC = antenatal care; CI = confidence interval; FP = family planning; HTC = HIV testing and counseling; PNC = postnatal care; STI = sexually transmitted infection

APPENDIX TABLE 3D. STRUCTURAL QUALITY INDICATORS BY MANAGING AUTHORITY, MALAWI 2013-14

Domain	Indicator	Public %	Private For-Profit %	Private nonprofit %	CHAM/FBO %	p-value
Choice of methods	Mix of methods provided and currently available	64.7	26.4	78.2	47.3	<0.001
FP integration/ constellation of services	With ANC services	88.1	30.6	21.4	91.4	
	With PNC services	85.1	27.8	19.2	88.2	<0.001
	With STI services	95.1	98.1	100.0	100.0	0.021
	With HTC services	93.4	56.9	95.5	97.9	<0.001
	With PMTCT services	84.3	20.4	14.9	85.0	<0.001
Management	System for reviewing management/administrative issues	74.4	21.2	41.4	57.8	<0.001
	System to obtain client opinions	8.1	4.8	11.0	5.2	0.257
	Supervision in the last 6 months	76.7	45.2	76.0	85.2	<0.001
	Inventory of contraceptive supplies	87.4	61.2	91.2	83.1	<0.001
	Stock organized by expiration date	79.7	64.1	89.1	79.9	<0.001
	Contraceptives protected from water, sun, pests	71.1	78.8	82.7	74.8	0.094
Facility infrastructure	Electricity	62.7	49.5	48.1	65.2	0.003
	Water	93.5	95.8	100.0	96.7	0.149
	Toilet	20.5	54.1	76.3	27.4	<0.001
	Telephone	25.2	31.8	80.4	20.0	<0.001
	Waiting area (protected)	97.4	97.7	97.8	100.0	0.484
	Quality assurance measures in place	13.3	8.5	28.3	11.6	0.003
FP infrastructure	FP services provided 5 days per week	25.1	4.8	4.3	10.8	<0.001
	FP guidelines	39.7	27.6	48.1	34.7	0.007
	Private exam room	96.4	96.7	95.6	94.7	0.865
	Blood pressure cuff	52.9	93.0	91.3	67.4	<0.001
	Speculum	9.5	17.5	63.2	7.4	<0.001
	Exam bed	84.3	94.8	87.1	80.1	<0.001
	Light	19.3	40.5	59.1	23.1	<0.001
	Soap or alcohol-based hand rub	42.3	77.8	93.7	56.7	<0.001
	Gloves	90.3	92.4	97.8	83.1	0.021
	Decontamination solution	50.8	67.5	75.9	57.0	<0.001
	Sharps box	93.0	84.9	89.0	90.5	0.011
	At least one trained FP provider	55.0	36.8	72.0	45.2	<0.001

Note: ANC = antenatal care; CHAM = Christian Health Association of Malawi; CI = confidence interval; FBO = faith-based organization; FP = family planning; HTC = HIV testing and counseling; PNC = postnatal care; STI = sexually transmitted infection

APPENDIX TABLE 3E. STRUCTURAL QUALITY INDICATORS BY MANAGING AUTHORITY, NEPAL 2015

Domain	Indicator	Public Hospital % [95% CI]	Private Hospital % [95% CI]	Public health center or other % [95% CI]	p-value
Choice of methods	Mix of methods provided and currently available	92.1 [84.7,96.1]	30.2 [20.2,42.6]	21.9 [18.5,25.6]	<0.001
FP integration/ constellation of services	With ANC services	98.0 [92.3,99.5]	93.6 [83.1,97.7]	98.7 [96.5,99.6]	0.016
	With PNC services	94.1 [87.3,97.3]	88.4 [79.1,93.9]	95.0 [92.3,96.8]	0.036
	With STI services	99.0 [93.2,99.9]	96.4 [86.1,99.2]	71.3 [66.6,75.6]	<0.001
	With HTC services	96.0 [90.0,98.5]	98.3 [92.0,99.6]	63.8 [59.0,68.4]	<0.001
	With PMTCT services	60.4 [51.3,68.9]	22.3 [13.7,34.1]	16.6 [13.7,20.1]	<0.001
Management	System for reviewing management/administrative issues	67.3 [57.7,75.6]	49.8 [37.7,61.9]	66.9 [62.0,71.4]	0.009
	System to obtain client opinions	5.9 [2.7,12.8]	12.4 [6.7,21.8]	1.5 [0.7,3.1]	<0.001
	Supervision in the last 6 months	78.2 [69.2,85.1]	58.2 [45.4,70.0]	62.9 [57.9,67.6]	0.123
	Inventory of contraceptive supplies	42.6 [33.3,52.5]	49.3 [36.8,61.9]	19.1 [15.6,23.2]	<0.001
	Stock organized by expiration date	94.1 [87.2,97.4]	77.1 [65.6,85.6]	90.3 [86.8,93.0]	0.001
	Contraceptives protected from water, sun, pests	94.1 [87.3,97.3]	83.7 [73.4,90.5]	78.9 [74.4,82.8]	0.041
Facility infrastructure	Electricity	93.1 [86.0,96.7]	98.3 [92.0,99.6]	38.1 [34.0,42.4]	<0.001
	Water	95.1 [88.7,97.9]	98.8 [96.2,99.6]	81.7 [77.5,85.3]	<0.001
	Toilet	95.1 [88.6,97.9]	97.8 [85.6,99.7]	79.6 [75.2,83.5]	0.001
	Telephone	91.1 [84.1,95.2]	92.7 [82.6,97.1]	4.5 [3.3,6.1]	<0.001
	Waiting area (protected)	95.1 [89.4,97.8]	99.6 [97.1,99.9]	77.0 [72.4,81.0]	<0.001
	Quality assurance measures in place	31.7 [23.2,41.8]	16.8 [10.3,26.3]	20.0 [16.4,24.1]	0.114
FP infrastructure	FP services provided 5 days per week	4.9 [2.0,11.6]	9.9 [5.4,17.5]	6.9 [3.5,13.4]	<0.001
	FP guidelines	18.8 [12.5,27.3]	1.2 [0.4,3.8]	13.4 [10.3,17.1]	<0.001
	Private exam room	94.0 [87.0,97.3]	93.6 [81.5,98.0]	79.8 [75.3,83.6]	0.007
	Blood pressure cuff	95.1 [88.7,97.9]	89.0 [77.0,95.2]	86.2 [82.3,89.4]	0.267
	Speculum	90.0 [82.3,94.6]	33.0 [22.6,45.3]	15.0 [12.3,18.2]	<0.001
	Exam bed	96.0 [89.9,98.5]	96.9 [87.3,99.3]	82.9 [78.7,86.5]	0.001
	Light	62.4 [53.7,70.3]	79.3 [68.5,87.0]	42.4 [37.7,47.2]	<0.001
	Soap or alcohol-based hand rub	84.2 [75.8,90.0]	82.3 [71.3,89.7]	58.3 [53.3,63.1]	<0.001
	Gloves	97.0 [91.0,99.1]	90.1 [78.9,95.7]	87.3 [83.5,90.3]	0.185
	Decontamination solution	80.2 [71.2,86.9]	75.2 [61.5,85.2]	67.4 [62.6,71.8]	0.131
	Sharps box	93.0 [86.0,96.6]	61.8 [49.1,73.0]	88.4 [84.9,91.2]	<0.001
	At least one trained FP provider	60.4 [51.0,69.0]	14.3 [8.0,24.3]	31.6 [27.2,36.2]	<0.001

Note: ANC = antenatal care; CI = confidence interval; FP = family planning; HTC = HIV testing and counseling; PNC = postnatal care; STI = sexually transmitted infection

APPENDIX TABLE 3F. STRUCTURAL QUALITY INDICATORS BY MANAGING AUTHORITY, SENEGAL 2019

Domain	Indicator	Public % [95% CI]	Private % [95% CI]	p-value
Choice of methods	Mix of methods provided and currently available	66.3 [63.4,69.1]	15.9 [6.0,36.0]	<0.001
FP integration/ constellation of services	With ANC services	84.6 [82.2,86.8]	96.9 [89.4,99.1]	0.004
	With PNC services	75.5 [74.5,76.4]	91.4 [70.7,97.9]	0.083
	With STI services	81.5 [79.0,83.8]	94.5 [68.4,99.3]	0.167
	With HTC services	83.5 [81.2,85.5]	67.7 [25.2,92.9]	0.337
	With PMTCT services	83.5 [80.9,85.7]	85.0 [66.7,94.1]	0.831
Management	System for reviewing management/administrative issues	57.2 [51.6,62.7]	17.7 [6.4,40.5]	0.001
	System to obtain client opinions	14.7 [11.5,18.7]	10.5 [3.6,27.1]	0.518
	Supervision in the last 6 months	89.3 [85.4,92.4]	45.6 [19.1,74.8]	<0.001
	Inventory of contraceptive supplies	62.2 [57.3,66.8]	37.3 [15.5,66.0]	0.086
	Stock organized by expiration date	64.6 [59.5,69.3]	33.7 [14.5,60.3]	0.018
	Contraceptives protected from water, sun, pests	89.0 [85.0,92.0]	40.2 [17.1,68.6]	<0.001
Facility infrastructure	Electricity	61.0 [55.7,66.0]	73.5 [46.8,89.7]	0.330
	Water	90.5 [87.2,93.1]	100.0	0.160
	Toilet	88.5 [85.8,90.8]	97.6 [84.0,99.7]	0.076
	Telephone	12.4 [9.7,15.8]	74.1 [48.9,89.5]	<0.001
	Waiting Area (protected)	96.9 [94.0,98.4]	97.9 [90.9,99.5]	0.633
	Quality assurance measures in place	49.0 [44.9,53.2]	14.7 [5.5,33.8]	0.001
FP infrastructure	FP services provided 5 days per week	0.4 [0.1,2.6]	26.1 [21.9,30.7]	0.924
	FP guidelines	84.8 [80.1,88.5]	51.5 [21.4,80.6]	0.012
	Private exam room	74.3 [72.5,76.1]	92.4 [71.7,98.3]	0.053
	Blood pressure cuff	59.0 [55.1,62.8]	75.8 [50.1,90.7]	0.176
	Speculum	63.0 [59.9,66.0]	70.9 [46.6,87.2]	0.496
	Exam bed	79.8 [75.2,83.8]	77.2 [51.7,91.5]	0.800
	Light	52.1 [47.0,57.1]	70.1 [43.3,87.8]	0.177
	Soap or alcohol-based hand rub	73.8 [72.2,75.3]	94.5 [68.4,99.3]	0.053
	Gloves	74.8 [73.4,76.2]	94.5 [68.4,99.3]	0.062
	Decontamination solution	70.9 [68.4,73.4]	91.8 [70.1,98.2]	0.038
	Sharps box	75.4 [74.2,76.5]	93.4 [70.0,98.9]	0.068
	At least one trained FP provider	85.8 [81.3,89.4]	89.7 [74.4,96.3]	0.533

Note: ANC = antenatal care; CHAM = Christian Health Association of Malawi; CI = confidence interval; FBO = faith-based organization; FP = family planning; HTC = HIV testing and counseling NA = not applicable; PNC = postnatal care; STI = sexually transmitted infection

APPENDIX TABLE 3G. STRUCTURAL QUALITY INDICATORS BY MANAGING AUTHORITY, TANZANIA 2014-15

Domain	Indicator	Public or Parastatal % [95% CI]	Private For-Profit % [95% CI]	FBO % [95% CI]	p-value
Choice of methods	Mix of methods provided (one LA, one SA, one barrier) and currently available	39.5 [35.1,44.1]	62.8 [45.3,77.5]	34.6 [19.2,54.0]	0.041
FP integration/ constellation of services	With ANC services	99.5 [98.5,99.9]	86.5 [70.1,94.6]	97.3 [86.6,99.5]	<0.001
	With PNC services	95.6 [93.5,97.1]	82.2 [65.5,91.8]	87.3 [66.0,96.1]	0.005
	With STI services	98.2 [96.1,99.2]	98.9 [95.0,99.8]	94.9 [73.6,99.2]	0.308
	With HTC services	97.4 [95.1,98.7]	82.3 [55.4,94.6]	97.8 [85.3,99.7]	0.001
	With PMTCT services	94.6 [91.9,96.4]	74.2 [55.1,87.1]	96.5 [86.9,99.2]	<0.001
Management	System for reviewing management/administrative issues	76.8 [72.7,80.4]	28.9 [13.3,51.8]	49.4 [31.3,67.6]	<0.001
	System to obtain client opinions	9.7 [7.2,12.8]	29.0 [14.7,49.2]	12.7 [5.1,28.4]	0.006
	Supervision in the last 6 months	92.6 [89.2,95.0]	83.2 [58.1,94.6]	89.5 [72.5,96.5]	0.279
	Inventory of contraceptive supplies	68.0 [63.8,71.8]	65.2 [44.2,81.6]	48.8 [31.4,66.5]	0.123
	Stock organized by expiration date	46.1 [41.4,50.9]	74.4 [52.7,88.4]	45.5 [27.9,64.3]	0.030
	Contraceptives protected from water, sun, pests	56.6 [51.9,61.1]	66.1 [44.7,82.5]	49.4 [31.3,67.6]	0.491
Facility infrastructure	Electricity	61.5 [56.8,66.1]	65.1 [42.7,82.3]	81.2 [64.1,91.2]	0.129
	Water	64.9 [60.4,69.2]	92.8 [75.7,98.2]	78.4 [58.9,90.2]	0.006
	Toilet	29.4 [25.6,33.5]	91.4 [75.8,97.3]	62.7 [46.3,76.5]	<0.001
	Telephone	1.6 [1.2,2.1]	36.6 [19.8,57.5]	9.6 [6.1,14.8]	<0.001
	Waiting area (protected)	93.8 [90.9,95.9]	100.0	99.2 [94.5,99.9]	0.064
	Quality assurance measures in place	14.5 [11.9,17.6]	11.6 [5.0,24.6]	31.1 [18.0,48.2]	0.015
FP infrastructure	FP services provided 5 days per week	3.1 [1.8,5.3]	0.8 [0.3,2.2]	17.3 [13.8,21.5]	0.003
	FP guidelines	58.4 [53.7,63.0]	51.8 [31.3,71.7]	54.0 [37.6,69.6]	0.730
	Private exam room	93.6 [91.0,95.4]	97.2 [93.6,98.8]	95.9 [81.7,99.2]	0.410
	Blood pressure cuff	71.1 [66.6,75.3]	82.8 [66.8,92.0]	66.5 [47.4,81.4]	0.315
	Speculum	19.6 [16.5,23.3]	67.3 [46.7,82.9]	33.0 [19.1,50.7]	<0.001
	Exam bed	86.1 [82.2,89.3]	92.0 [77.1,97.5]	95.4 [82.0,98.9]	0.181
	Light	8.2 [5.9,11.3]	64.9 [44.4,81.1]	26.3 [14.3,43.1]	<0.001
	Soap or alcohol-based hand rub	63.2 [58.7,67.5]	76.9 [54.3,90.3]	83.5 [67.0,92.6]	0.049
	Gloves	88.1 [84.8,90.8]	94.3 [78.5,98.7]	89.9 [73.8,96.6]	0.565
	Decontamination solution	56.5 [52.0,60.9]	59.7 [38.1,78.1]	61.8 [43.8,77.0]	0.835
	Sharps box	97.1 [94.9,98.3]	97.8 [94.2,99.2]	92.5 [77.5,97.8]	0.172
	At least one trained FP provider	37.8 [33.4,42.5]	45.3 [26.9,65.1]	48.0 [30.2,66.4]	0.465

Note: ANC = antenatal care; CI = confidence interval; FBO = faith-based organization; FP = family planning; HTC = HIV testing and counseling; LA = long-acting; PNC = postnatal care; SA = short-acting; STI = sexually transmitted infection

APPENDIX TABLE 4A. PROCCESS AND OUTCOME QUALITY INDICATORS BY MANAGING AUTHORITY, DRC 2017-18

Domain	Indicator	Public % [95% CI]	Private For-Profit % [95% CI]	Private nonprofit or FBO % [95% CI]	p-value
Choice of methods	Provider mentioned two or more FP methods	55.5 [38.9,71.0]	55.4 [23.0,83.8]	51.9 [31.7,71.5]	0.964
	Provider asked about client's method of choice	70.0 [52.7,83.1]	56.0 [23.4,84.1]	86.8 [76.4,93.1]	0.166
Technical/ Provider competence	Client card	90.6 [76.6,96.6]	82.1 [58.9,93.6]	92.2 [76.3,97.7]	0.552
	Last delivery date assessed	71.7 [57.6,82.5]	77.7 [52.2,91.7]	81.7 [67.5,90.5]	0.513
	Pregnancy status assessed	80.4 [66.7,89.4]	77.1 [51.4,91.4]	77.7 [64.1,87.2]	0.922
	Breastfeeding status assessed	43.1 [27.1,60.7]	76.5 [50.6,91.2]	28.2 [12.9,50.9]	0.025
	Menstrual cycle regularity assessed	46.9 [32.3,62.1]	73.3 [44.7,90.3]	41.8 [26.5,58.8]	0.175
	Age of client assessed	81.2 [64.3,91.2]	88.2 [49.9,98.3]	81.0 [60.3,92.3]	0.863
	Current number of children assessed	75.5 [61.6,85.6]	88.2 [49.9,98.3]	86.5 [73.8,93.6]	0.353
	Desire for more kids assessed	31.7 [20.3,45.7]	35.4 [4.3,87.0]	21.0 [7.8,45.5]	0.774
	Desired timing for next child assessed	35.4 [22.7,50.4]	28.6 [14.4,48.7]	40.1 [23.1,59.8]	0.733
	Blood pressure measured	67.0 [51.4,79.5]	39.3 [5.3,88.2]	69.0 [45.6,85.5]	0.467
	Weight measured	64.8 [47.8,78.7]	39.3 [5.3,88.2]	70.2 [46.3,86.6]	0.482
	NA- Smoking habits assessed	n/a	n/a	n/a	n/a
	NA- STI symptoms assessed	n/a	n/a	n/a	n/a
	NA- Chronic illnesses assessed	n/a	n/a	n/a	n/a
Follow-up	Provider informed client when to return for resupply or follow-up	76.7 [64.0,85.8]	92.3 [51.4,99.3]	78.3 [51.8,92.4]	0.564
Information given to client	Explains how to use the selected method	70.6 [52.2,84.1]	58.0 [23.6,86.1]	79.7 [66.1,88.8]	0.439
	Explains side effects of selected method	73.0 [58.6,83.7]	47.6 [11.6,86.2]	78.5 [62.4,89.0]	0.296
Client-provider relations	Staff treated client very well	92.1 [77.3,97.5]	100.0	96.4 [89.8,98.8]	0.515
	Provider asked if client had any questions or concerns	51.2 [36.4,65.9]	97.2 [81.8,99.6]	72.9 [50.3,87.7]	0.002
	Client felt comfortable asking questions during the visit	88.9 [75.5,95.4]	100.0	94.3 [87.6,97.5]	0.438
	Provider assured client of confidentiality	40.9 [25.2,58.6]	21.7 [6.2,53.7]	27.7 [12.7,50.3]	0.408
	Client had visual privacy	62.5 [45.9,76.7]	100.0	62.2 [40.2,80.1]	0.222
	Client had audio privacy	64.6 [48.1,78.1]	99.4 [94.3,99.9]	61.3 [40.9,78.4]	0.021
Outcome (client experience)	Wait time was no problem	82.0 [69.0,90.3]	80.3 [39.2,96.3]	88.9 [79.7,94.2]	0.677
	Very satisfied with care	93.0 [86.3,96.5]	100.0	82.6 [57.3,94.4]	0.316
	Would recommend facility to friend or family	95.6 [87.3,98.5]	100.0	97.8 [90.7,99.5]	0.600

Note: CI = confidence interval; FBO = faith-based organization; FP = family planning; NA = not applicable; STI = sexually transmitted infection

APPENDIX TABLE 4B. PROCCESS AND OUTCOME QUALITY INDICATORS BY MANAGING AUTHORITY, HAITI 2017-18

Domain	Indicator	Public % [95% CI]	Private For-Profit % [95% CI]	Private nonprofit % [95% CI]	Mixed % [95% CI]	p-value
Choice of methods	Provider mentioned two or more FP methods	28.2 [24.1,32.7]	29.7 [22.6,37.9]	38.4 [27.7,50.4]	32.1 [25.4,39.6]	0.278
	Provider asked about client's method of choice	15.6 [12.2,19.8]	20.3 [14.8,27.0]	20.7 [13.2,31.0]	22.5 [15.9,30.9]	0.257
Technical/ Provider competence	Client card	87.2 [83.4,90.3]	82.3 [74.5,88.2]	90.6 [79.9,95.9]	91.2 [84.3,95.2]	0.230
	Last delivery date assessed	24.3 [19.5,29.9]	25.9 [19.0,34.1]	23.9 [14.0,37.6]	20.6 [14.9,27.7]	0.808
	Pregnancy status assessed	43.0 [37.5,48.7]	39.0 [29.6,49.2]	49.9 [39.4,60.3]	43.5 [35.7,51.6]	0.525
	Breastfeeding status assessed	2.6 [1.6,4.2]	4.0 [2.0,7.9]	4.6 [1.0,18.8]	2.8 [1.1,6.9]	0.721
	Menstrual cycle regularity assessed	9.2 [6.2,13.4]	8.8 [5.0,15.1]	5.6 [3.0,10.4]	12.2 [7.8,18.3]	0.344
	Age of client assessed	44.1 [38.1,50.1]	45.7 [36.4,55.3]	58.0 [45.3,69.8]	45.8 [35.5,56.4]	0.250
	Current number of children assessed	44.9 [38.9,51.0]	41.9 [33.3,51.0]	50.7 [39.6,61.8]	40.3 [30.8,50.5]	0.522
	Desire for more kids assessed	1.9 [1.0,3.6]	3.0 [1.3,6.6]	2.2 [0.8,5.9]	3.4 [1.7,6.7]	0.56
	Desired timing for next child assessed	2.8 [1.3,5.7]	2.0 [0.7,5.1]	0.9 [0.2,3.8]	4.9 [2.4,9.5]	0.183
	Blood pressure measured	59.9 [51.8,67.5]	62.2 [50.5,72.6]	57.2 [42.3,70.9]	72.3 [60.6,81.5]	0.258
	Weight measured	44.5 [36.7,52.6]	49.5 [37.7,61.3]	44.6 [29.5,60.7]	59.2 [46.3,71.0]	0.233
	Smoking habits assessed	2.3 [1.0,5.2]	2.0 [0.7,5.3]	2.2 [0.7,6.4]	0.6 [0.1,4.5]	0.575
	STI symptoms assessed	7.1 [4.7,10.6]	9.1 [5.2,15.2]	6.8 [3.1,14.2]	6.5 [3.4,12.3]	0.873
	Chronic illnesses assessed	6.5 [4.2,10.0]	4.6 [2.3,9.2]	8.7 [3.8,18.5]	6.0 [3.1,11.0]	0.703
Follow-up	Provider informed client when to return for resupply or follow-up	83.2 [77.8,87.5]	80.9 [71.1,87.9]	85.8 [75.1,92.3]	78.2 [68.3,85.6]	0.587
Information given to client	Explains how to use the selected method	31.5 [27.2,36.3]	41.1 [32.5,50.3]	30.9 [20.4,43.8]	39.9 [32.3,48.0]	0.164
	Explains side effects of selected method	27.9 [22.6,33.8]	30.7 [22.6,40.3]	43.4 [29.6,58.3]	24.3 [17.6,32.7]	0.061
Client-provider relations	Staff treated client very well	98.4 [96.9,99.2]	98.0 [94.1,99.3]	98.9 [92.7,99.8]	99.3 [97.4,99.8]	0.696
	Provider asked if client had any questions or concerns	48.1 [42.2,53.9]	54.5 [44.7,64.0]	43.3 [30.8,56.8]	47.7 [39.1,56.3]	0.568
	Client felt comfortable asking questions during the visit	96.7 [94.0,98.2]	97.1 [93.3,98.8]	98.9 [92.4,99.8]	97.9 [94.9,99.1]	0.607
	Provider assured client of confidentiality	16.5 [11.9,22.5]	17.5 [10.6,27.7]	20.1 [10.3,35.6]	18.0 [10.4,29.2]	0.948
	Client had visual privacy	71.1 [63.5,77.6]	68.2 [57.7,77.2]	83.5 [69.7,91.8]	80.5 [70.6,87.7]	0.105
	Client had audio privacy	64.5 [56.6,71.8]	60.5 [49.7,70.3]	76.1 [61.1,86.6]	68.5 [56.2,78.7]	0.354
Outcome (client experience)	Wait time was no problem	88.2 [83.6,91.7]	89.3 [84.0,93.0]	85.5 [77.5,91.0]	93.0 [88.2,95.9]	0.223
	Very satisfied with care	94.7 [92.4,96.3]	95.3 [91.2,97.6]	97.6 [92.2,99.3]	93.8 [88.8,96.6]	0.485
	Would recommend facility to friend or family	99.3 [98.3,99.8]	99.6 [97.4,99.9]	98.2 [92.6,99.6]	98.5 [95.4,99.5]	0.394

Note: CI = confidence interval; FP = family planning; NA = not applicable; STI = sexually transmitted infection

APPENDIX TABLE 4C. PROCCESS AND OUTCOME QUALITY INDICATORS BY MANAGING AUTHORITY, MALAWI 2013-14

Domain	Indicator	Public % [95% CI]	Private For-Profit % [95% CI]	Private nonprofit % [95% CI]	CHAM/FBO % [95% CI]	p-value
Choice of methods	Provider mentioned two or more FP methods	33.2 [27.8,39.0]	23.6 [15.5,34.3]	47.4 [33.3,61.9]	26.1 [14.9,41.6]	0.163
	Provider asked about client's method of choice	69.0 [63.5,74.0]	68.6 [58.0,77.6]	67.3 [56.5,76.5]	53.6 [37.9,68.6]	0.087
Technical/ Provider competence	Client card	99.2 [98.3,99.6]	98.3 [95.4,99.4]	88.6 [75.4,95.1]	100.0	<0.001
	Last delivery date assessed	41.0 [33.3,49.1]	24.5 [15.7,36.1]	46.3 [33.3,59.8]	29.1 [17.4,44.5]	0.072
	Pregnancy status assessed	33.2 [28.1,38.8]	35.1 [23.5,48.8]	59.4 [46.3,71.2]	34.7 [23.1,48.5]	0.077
	Breastfeeding status assessed	17.4 [13.2,22.5]	15.7 [7.9,28.7]	19.0 [10.1,33.0]	15.8 [8.1,28.4]	0.959
	Menstrual cycle regularity assessed	21.9 [17.3,27.4]	23.1 [15.6,32.8]	36.9 [21.9,55.0]	14.7 [7.2,27.8]	0.160
	Age of client assessed	57.7 [49.8,65.3]	42.2 [30.8,54.5]	76.4 [64.3,85.4]	57.3 [41.2,72.0]	0.107
	Current number of children assessed	62.0 [54.7,68.9]	47.5 [36.4,58.8]	75.1 [61.1,85.2]	58.4 [44.8,70.8]	0.124
	Desire for more kids assessed	23.9 [18.8,30.0]	16.9 [10.3,26.5]	34.8 [20.4,52.6]	17.0 [9.6,28.1]	0.175
	Desired timing for next child assessed	16.5 [11.7,22.7]	13.0 [7.8,20.7]	17.1 [8.2,32.3]	9.1 [3.4,22.0]	0.386
	Blood pressure measured	30.5 [22.3,40.1]	57.8 [43.1,71.3]	57.6 [41.7,72.0]	53.4 [36.4,69.7]	0.001
	Weight measured	61.9 [54.0,69.1]	67.1 [53.4,78.5]	52.5 [34.2,70.1]	60.8 [44.0,75.4]	0.762
	Smoking habits assessed	1.6 [0.7,3.6]	0.0	3.1 [1.1,8.4]	1.6 [0.3,9.8]	0.706
	STI symptoms assessed	8.3 [5.1,13.0]	8.8 [3.7,19.2]	14.4 [7.4,26.3]	6.2 [3.1,12.1]	0.531
	Chronic illnesses assessed	8.7 [5.6,13.2]	4.7 [2.3,9.1]	20.5 [10.4,36.4]	4.0 [1.6,9.6]	0.013
Follow-up	Provider informed client when to return for resupply or follow-up	83.7 [78.2,88.0]	91.1 [81.2,96.1]	81.1 [67.7,89.7]	89.5 [76.1,95.8]	0.339
Information given to client	Explains how to use the selected method	52.7 [45.4,60.0]	44.9 [32.4,58.0]	54.9 [40.1,68.9]	36.8 [26.1,48.9]	0.059
	Explains side effects of selected method	44.3 [38.7,50.0]	32.6 [22.8,44.1]	57.3 [47.4,66.7]	44.8 [33.8,56.3]	0.135
Client-provider relations	Staff treated client very well	91.2 [87.3,94.0]	98.7 [95.2,99.7]	96.2 [89.2,98.7]	96.9 [93.2,98.6]	0.001
	Provider asked if client had any questions or concerns	76.6 [70.4,81.9]	64.3 [49.7,76.6]	88.0 [79.0,93.5]	69.5 [49.6,84.1]	0.202
	Client felt comfortable asking questions during the visit	90.2 [87.5,92.4]	93.6 [86.1,97.2]	95.4 [80.1,99.1]	87.7 [79.3,93.0]	0.441
	Provider assured client of confidentiality	22.0 [16.6,28.5]	19.8 [11.2,32.7]	47.1 [30.6,64.3]	15.3 [7.2,29.7]	0.043
	Client had visual privacy	85.8 [80.8,89.6]	87.2 [74.6,94.0]	96.2 [87.1,99.0]	69.9 [49.1,84.9]	0.032
	Client had audio privacy	82.0 [76.1,86.7]	85.3 [72.8,92.6]	97.5 [92.1,99.2]	72.5 [50.7,87.1]	0.157
Outcome (client experience)	Wait time was no problem	73.3 [68.2,77.8]	83.9 [71.2,91.6]	81.8 [65.8,91.3]	83.5 [75.0,89.5]	0.051
	Very satisfied with care	92.7 [90.0,94.8]	96.1 [90.4,98.5]	95.0 [88.9,97.8]	94.6 [89.2,97.4]	0.440
	Would recommend facility to friend or family	99.2 [98.6,99.6]	98.7 [95.2,99.7]	98.8 [91.8,99.8]	99.5 [96.7,99.9]	0.816

Note: CHAM = Christian Health Association of Malawi; CI = confidence interval; FBO = faith-based organization; FP = family planning; STI = sexually transmitted infection

APPENDIX TABLE 4D. PROCCESS AND OUTCOME QUALITY INDICATORS BY MANAGING AUTHORITY, NEPAL 2015

Domain	Indicator	Public Hospital	Private	Public health center or other	p-value
Choice of methods	Provider mentioned two or more FP methods	24.8 [18.3,32.6]	17.1 [4.9,45.1]	21.4 [16.7,27.0]	0.693
	Provider asked about client's method of choice	15.2 [11.0,20.6]	8.6 [2.2,28.5]	10.3 [7.4,14.2]	0.218
Technical/ Provider competence	Client card	92.2 [87.5,95.3]	92.3 [71.1,98.3]	78.5 [69.1,85.7]	0.001
	Last delivery date assessed	27.2 [19.8,36.2]	31.1 [19.2,46.2]	14.0 [10.5,18.5]	<0.001
	Pregnancy status assessed	31.0 [22.3,41.2]	38.8 [17.9,64.9]	28.2 [23.0,33.9]	0.619
	Breastfeeding status assessed	5.2 [2.6,10.3]	0.0	1.9 [0.9,4.2]	0.212
	Menstrual cycle regularity assessed	40.1 [32.4,48.4]	44.4 [25.8,64.7]	36.2 [30.1,42.8]	0.578
	Age of client assessed	35.4 [28.1,43.4]	40.2 [20.9,63.0]	38.1 [31.5,45.2]	0.849
	Current number of children assessed	34.6 [25.3,45.2]	42.5 [25.7,61.1]	23.9 [19.1,29.5]	0.028
	Desire for more kids assessed	13.8 [8.3,22.2]	5.1 [0.8,26.7]	8.3 [5.1,13.0]	0.207
	Desired timing for next child assessed	1.8 [0.7,4.6]	1.7 [0.2,15.5]	2.8 [1.4,5.3]	0.673
	Blood pressure measured	58.9 [44.7,71.7]	53.3 [25.1,79.5]	51.0 [43.4,58.7]	0.579
	Weight measured	50.8 [37.0,64.4]	56.7 [29.6,80.3]	35.4 [28.0,43.5]	0.056
	NA- Smoking habits assessed	n/a	n/a	n/a	n/a
	NA- STI symptoms assessed	n/a	n/a	n/a	n/a
	NA- Chronic illnesses assessed	n/a	n/a	n/a	n/a
Follow-up	Provider informed client when to return for resupply or follow-up	55.8 [43.0,67.9]	46.1 [24.0,69.8]	59.4 [52.7,65.8]	0.581
Information given to client	Explains how to use the selected method	25.1 [17.5,34.5]	13.0 [3.6,37.7]	22.5 [17.0,29.2]	0.590
	Explains side effects of selected method	25.3 [18.9,33.0]	18.6 [6.9,41.1]	18.9 [14.4,24.4]	0.284
Client-provider relations	Staff treated client very well	93.9 [88.3,96.9]	100.0	95.5 [91.6,97.6]	0.647
	Provider asked if client had any questions or concerns	33.4 [25.1,42.9]	30.2 [20.5,42.1]	32.1 [26.1,38.8]	0.880
	Client felt comfortable asking questions during the visit	83.6 [75.6,89.4]	97.0 [86.9,99.4]	83.9 [79.2,87.7]	0.217
	Provider assured client of confidentiality	6.6 [3.4,12.4]	3.9 [0.5,25.2]	7.6 [4.5,12.6]	0.784
	Client had visual privacy	59.6 [44.0,73.5]	80.6 [47.4,95.0]	39.4 [31.7,47.6]	0.005
	Client had audio privacy	51.2 [36.1,66.2]	67.8 [44.7,84.6]	32.8 [26.3,40.0]	0.007
Outcome (client experience)	Wait time was no problem	74.2 [64.0,82.4]	84.0 [56.5,95.5]	81.6 [76.7,85.6]	0.283
	Very satisfied with care	82.9 [74.9,88.7]	65.0 [24.3,91.5]	90.0 [85.6,93.2]	0.048
	Would recommend facility to friend or family	97.6 [93.4,99.2]	95.7 [76.6,99.4]	98.6 [95.8,99.5]	0.511

Note: CI = confidence interval; FP = family planning; NA = not applicable; STI = sexually transmitted infection

APPENDIX TABLE 4E. PROCCESS AND OUTCOME QUALITY INDICATORS BY MANAGING AUTHORITY, SENEGAL 2019

Domain	Indicator	Public % [95% CI]	Private % [95% CI]	p-value
Choice of methods	Provider mentioned two or more FP methods	19.2 [15.2,23.9]	9.5 [3.1,25.5]	0.173
	Provider asked about client's method of choice	70.6 [64.4,76.1]	93.6 [63.1,99.2]	0.062
Technical/ Provider competence	Client card	94.0 [91.1,96.0]	82.9 [68.4,91.5]	0.008
	Last delivery date assessed	48.8 [42.3,55.3]	48.0 [25.8,70.9]	0.950
	Pregnancy status assessed	54.7 [47.8,61.4]	52.1 [28.1,75.2]	0.845
	Breastfeeding status assessed	26.6 [21.8,32.0]	6.4 [0.6,42.9]	0.129
	Menstrual cycle regularity assessed	51.2 [45.0,57.3]	69.4 [40.8,88.2]	0.202
	Age of client assessed	71.4 [64.4,77.5]	49.6 [20.2,79.3]	0.175
	Current number of children assessed	33.6 [28.3,39.4]	24.3 [8.8,51.6]	0.461
	Desire for more kids assessed	7.0 [4.7,10.4]	3.2 [0.3,25.1]	0.474
	Desired timing for next child assessed	4.1 [2.5,6.6]	5.9 [1.2,24.5]	0.666
	Blood pressure measured	92.6 [88.7,95.2]	93.2 [72.0,98.6]	0.914
	Weight measured	89.9 [85.8,93.0]	73.3 [43.9,90.6]	0.063
	Smoking habits assessed	10.9 [7.7,15.1]	10.7 [2.2,39.1]	0.986
	STI symptoms assessed	11.2 [7.8,15.8]	13.9 [2.8,47.5]	0.779
	Chronic illnesses assessed	12.8 [9.5,16.9]	17.8 [6.0,42.5]	0.536
Follow-up	Provider informed client when to return for resupply or follow-up	80.9 [75.1,85.6]	81.4 [34.8,97.3]	0.975
Information given to client	Explains how to use the selected method	67.8 [62.4,72.7]	64.1 [23.8,91.1]	0.854
	Explains side effects of selected method	52.9 [46.5,59.2]	47.0 [18.0,78.1]	0.740
Client-provider relations	Staff treated client very well	94.3 [90.6,96.6]	90.0 [69.2,97.3]	0.416
	Provider asked if client had any questions or concerns	60.2 [54.4,65.7]	75.4 [49.6,90.5]	0.221
	Client felt comfortable asking questions during the visit	96.9 [94.0,98.4]	83.6 [65.5,93.2]	0.001
	Provider assured client of confidentiality	78.2 [72.3,83.1]	78.5 [44.1,94.4]	0.981
	Client had visual privacy	94.7 [91.5,96.7]	100.0	0.534
	Client had audio privacy	94.1 [90.5,96.4]	100.0	0.520
Outcome (client experience)	Wait time was no problem	83.0 [78.0,87.1]	87.2 [40.5,98.6]	0.774
	Very satisfied with care	98.8 [97.3,99.5]	96.8 [79.1,99.6]	0.350
	Would recommend facility to friend or family	100.0 [99.7,100.0]	100.0	0.876

Note: CI = confidence interval; FP = family planning; STI = sexually transmitted infection

APPENDIX TABLE 4F. PROCCESS AND OUTCOME QUALITY INDICATORS BY MANAGING AUTHORITY, TANZANIA 2014-15

Domain	Indicator	Public or Parastatal % [95% CI]	Private For-Profit % [95% CI]	FBO % [95% CI]	p-value
Choice of methods	Provider mentioned two or more FP methods	37.2 [33.6,40.9]	21.4 [9.6,41.3]	35.1 [26.7,44.6]	0.150
	Provider asked about client's method of choice	60.9 [56.2,65.3]	59.0 [37.8,77.4]	51.5 [38.7,64.0]	0.504
Technical/ Provider competence	Client card	95.0 [91.6,97.0]	88.7 [51.7,98.3]	94.4 [84.5,98.1]	0.517
	Last delivery date assessed	49.4 [44.5,54.4]	51.8 [43.8,59.6]	64.2 [48.6,77.3]	0.091
	Pregnancy status assessed	51.4 [46.5,56.4]	57.5 [43.2,70.6]	69.2 [52.4,82.1]	0.067
	Breastfeeding status assessed	27.4 [23.6,31.7]	26.7 [15.8,41.4]	38.7 [24.4,55.3]	0.266
	Menstrual cycle regularity assessed	36.7 [32.3,41.3]	28.4 [15.0,47.0]	50.2 [34.2,66.2]	0.159
	Age of client assessed	76.3 [72.1,80.1]	72.4 [39.7,91.3]	76.4 [58.7,88.0]	0.923
	Current number of children assessed	78.4 [74.7,81.6]	82.6 [66.4,91.9]	75.4 [58.0,87.2]	0.768
	Desire for more kids assessed	27.2 [23.0,31.8]	23.3 [10.2,45.0]	37.0 [21.9,55.2]	0.453
	Desired timing for next child assessed	23.8 [20.0,28.1]	18.4 [6.1,44.0]	31.0 [17.6,48.7]	0.577
	Blood pressure measured	30.9 [26.5,35.6]	33.1 [21.9,46.6]	48.8 [32.8,65.1]	0.050
	Weight measured	35.3 [30.3,40.6]	48.5 [33.7,63.6]	54.3 [35.4,71.9]	0.047
	Smoking habits assessed	1.9 [1.1,3.5]	0.0	1.4 [0.5,4.0]	0.560
	STI symptoms assessed	12.5 [9.6,16.1]	6.8 [1.8,22.8]	7.5 [4.0,13.5]	0.279
	Chronic illnesses assessed	23.7 [20.1,27.6]	16.1 [6.6,34.3]	39.6 [24.5,57.0]	0.061
Follow-up	Provider informed client when to return for resupply or follow-up	81.5 [77.9,84.7]	79.2 [62.2,89.8]	79.0 [59.7,90.5]	0.889
Information given to client	Explains how to use the selected method	61.7 [57.1,66.1]	67.6 [38.6,87.4]	68.8 [53.0,81.1]	0.681
	Explains side effects of selected method	49.8 [44.3,55.4]	59.9 [42.9,74.7]	56.8 [40.1,72.0]	0.440
Client-provider relations	Staff treated client very well	95.1 [93.1,96.5]	100.0	94.7 [85.9,98.1]	0.469
	Provider asked if client had any questions or concerns	74.7 [69.1,79.6]	84.1 [70.9,92.0]	71.2 [53.9,84.0]	0.415
	Client felt comfortable asking questions during the visit	93.0 [89.5,95.5]	99.1 [93.7,99.9]	95.4 [86.0,98.6]	0.155
	Provider assured client of confidentiality	36.6 [31.8,41.8]	49.4 [19.6,79.6]	48.7 [30.9,66.8]	0.441
	Client had visual privacy	82.0 [77.3,85.8]	83.9 [69.5,92.3]	75.6 [55.6,88.5]	0.599
	Client had audio privacy	73.6 [67.8,78.7]	83.5 [69.2,92.0]	67.6 [45.8,83.8]	0.405
Outcome (client experience)	Wait time was no problem	73.8 [69.7,77.5]	80.2 [65.3,89.7]	82.1 [71.2,89.4]	0.254
	Very satisfied with care	90.5 [87.8,92.7]	94.5 [82.8,98.4]	96.5 [92.2,98.5]	0.114
	Would recommend facility to friend or family	98.1 [97.0,98.8]	100.0	99.3 [97.1,99.8]	0.427

Note: CI = confidence interval; FBO = faith-based organization; FP = family planning; STI = sexually transmitted infection

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