Retail Audit of Selected Family Planning, Maternal and Child Health and Hygiene Products in the Private Sector in Ghana

Introduction & Methods

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Retail Audit of Selected Family Planning, Maternal and Child Health and Hygiene Products in the Private Sector, Ghana

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List of Abbreviations

FP	Family Planning
GHS	Ghana Health Service
OTCMS	Over-the-counter medicine sellers
RA	Retail Audit
SRH	Sexual and Reproductive Health
TFHO	Total Family Health Organisation
USAID	United States Agency for International Development
WASH	Water, Sanitation and Hygiene

1   Introduction

Ghana has made steady progress in health and economic development in the past few decades (Brenya et al., 2017; Frimpong et al., 2017). However, the country still faces challenges that require tailored interventions to address. For instance, the health sector is confronted with delays in progress across critical areas including family planning (FP); maternal, newborn, child health and nutrition (MNCHN); and water, sanitation, and hygiene (WASH). These delays are attributable to issues such as challenges in the health system, insufficient funding, lack of the full complement of health personnel, and insufficient availability and supply of essential health commodities or products (Kimathi, 2017; Malakoane et al., 2020).

The Total Family Health Organisation (TFHO) has been working with stakeholders to address some of these issues. Specifically, TFHO seeks to ensure the availability and supply of high-quality essential sexual and reproductive health (SRH), maternal and child health, and water, sanitation and hygiene (WASH) products with a focus on the private sector. While the public sector has been the main driver of progress in the health sector over the years, the private sector has played a key role in the process and can play a greater role in improving health service delivery as well as water, hygiene, and sanitation (UNICEF, 2016).

With funding from the United States Agency for International Development (USAID) through the Health Marketing Activity (HMA) and Social Marketing and Private Sector Activity, TFHO has been working closely with the Ministry of Health/Ghana Health Service (GHS), fostered strategic partnerships with the private health sector (i.e., health facilities, pharmaceutical manufacturers and toilet solution providers), local and international organisations to introduce and bring to scale various high-quality products (e.g., sexual and reproductive health, maternal and child health, water, sanitation, and hygiene) into the market. Through social marketing, TFHO is seeking to contribute towards a sustainable availability and supply of high-quality, affordable products in the market.

As part of TFHO's activities and support to the private sector, the Research Department of TFHO with funding from USAID through the Health Marketing Activity (HMA) and Social Marketing and Private Sector Activity conducted a nationwide retail audit. The retail audit assessed sanitary pads, umbilical cord care products, contraceptives (condoms, oral contraceptive pills, intrauterine devices, implants, injectables) and Oral Rehydration Solutions (ORS) + zinc to support health market actors make evidence-based strategic decisions. The retail audit was conducted in private sector pharmacies, over-the-counter medicine sellers (OTCMS), modern trades and corner shops.

1.1   Objectives

The main objective of the retail audit was to monitor selected commodities and products in private sector retail outlets. Specifically, the retail audit assessed the:

    i.   availability of target commodities and products (including brand variations) in the selected retail outlets
    ii. prices of target commodities and products in the selected retail outlets

Methodology

2 Methods

This section of the report outlines the research design, data management, instrument development, quality control measures, and recruitment and training of personnel.

2.1 Research Design

This retail audit was a cross-sectional quantitative study. The survey was implemented from 19ᵗʰ February 2024 to 10ᵗʰ March 2024.

2.1.1 Target retail outlets

The survey targeted private sector outlets; pharmacies, OTCMS, corner shops and modern trades retail outlets across all the 16 regions of Ghana. The type of retail outlet determined the type of commodities products they were audited for (Table 2.1).

Table 2. 1: Product type, unit of measurement and type of outlet

No.	Product	Unit of measurement	Quantity	Outlet types
1	Emergency contraceptives	Per Pack	N/A	Pharmacies & OTCMS
2	Oral contraceptives	Per pack	Number of cycles in pack	Pharmacies & OTCMS
3	Male condoms	Per Pack or Strip	Number of pieces	Pharmacies, OTCMS & modern trades
4	Male condoms-lubricant co-pack	Per Pack	Number of pieces for condoms Number of sachets for lubricants	Pharmacies, OTCMS & modern trades
5	Female condoms	Per each	N/A	Pharmacies & OTCMS
6	Implants	Per Implant	N/A	Pharmacies & OTCMS
7	IUD contraceptive	Per IUD	N/A	Pharmacies & OTCMS
8	Injectables	Per Vial	N/A	Pharmacies & OTCMS
9	Sanitary pads	Per Pack	Number of Pads Number of Liners	All outlets
10	Chlorhexidine digluconate 7.1% gel	Per tube	N/A	Pharmacies & OTCMS
11	Oral Rehydration solution (ORS)	Per Sachet	N/A	Pharmacies & OTCMS
12	ZINC	Per strip	N/A	Pharmacies & OTCMS
13	Oral Rehydration Solution (ORS) + ZINC co-pack	Per pack	Number of sachets for ORS Number of strips of zinc	Pharmacies & OTCMS

2.1.2 Sampling approach

Sample size for each type of outlet was calculated separately to make it possible to conduct data analysis that reflects retail activities in the specific type of outlet. The sampling was implemented at two levels. The first stage of sampling involved the sampling of districts, and the next stage involved selecting outlets within districts.

2.1.2.1 Selection of districts

Sample size calculation: Ghana has a total of 261 districts; however, this study considered districts that had registered OTCMS, as its base population was larger and spreads across more districts compared to pharmacies. Additionally, the sample population included OTCMS with complete geographic information (i.e., address), which resulted in 217 districts with these details. The sample size was calculated using the following formula:

$$n = \frac{\left(\frac{Z^2_{(1-\alpha/2)} * P * (1-P)}{d^2}\right)}{1 + \frac{1}{N}\left(\frac{z^2_{\left(1-\frac{\alpha}{2}\right)} * P * (1-P)}{d^2} - 1\right)} \tag{1}$$

Where:

- n is the estimated number of districts from which the survey will be conducted
- P is the estimated proportion of outlets that will be selling at least one of the commodities to be audited
- d is the margin of error for the proportion of outlets selling the commodities to be audited
- N is the number of districts with at least one registered OTCMS
- Z is the standard normal deviate score
- α is the level of significance to be considered for the standard normal deviate score

With a population size of 217 districts with registered OTCMS (with complete geographic information), 95% confidence interval, z-score of 1.96, precision of +/-=5%, and assuming that 50% (conservative) of the districts would have outlets selling at least one of the target commodities or products, the minimum calculated sample size was 139 districts. The sample of 139 districts was distributed proportionately based on the number of registered OTCMS across the 16 regions. However, after distributing the sample, districts with sample allocations below 5 retail outlets (both OTCMS & pharmacies) in total were excluded and the allocated sample redistributed across other districts within the same region. This decision was made based on cost implications. Hence, the total number of districts where the survey was conducted was 120. Table 2.2 shows the number of sampled districts by region. Districts were then randomly selected within the regions.

Table 2. 2: Total number of districts in each region and sampled districts

No.	Region	Number of districts	No. of districts with registered OTCMS	Percent of sample	Sampled districts per region	Actual sampled districts per region
1	Western	14	13	6.0	8	8
2	Central	22	20	9.2	13	12
3	Greater Accra	29	16	7.4	10	12
4	Volta	19	17	7.8	11	9
5	Eastern	33	26	12.0	17	15
6	Ashanti	43	31	14.3	20	17
7	Western North	9	9	4.1	6	5
8	Ahafo	6	6	2.8	4	4
9	Bono	12	11	5.1	7	7
10	Bono East	11	10	4.6	6	6
11	Oti	8	8	3.7	5	5
12	Northern	16	15	6.9	10	4
13	Savannah	7	6	2.8	4	3
14	North East	6	5	2.3	3	3
15	Upper East	15	13	6.0	8	6
16	Upper West	11	11	5.1	7	4
	Total	261	217	100.0	139	120
	Calculated sample		139			

2.1.2.2   Selection of pharmacies

Sample size calculation: In this retail audit, pharmacies are operationalized as outlets where medicinal drugs are sold. Often, they have pharmacy or chemist as part of their names. The target population for pharmacies was registered (with the Pharmacy Council) private sector retail pharmacy outlets in the 16 regions of Ghana. Data from the Pharmacy Council showed that as of June 2023, there were about 5032 active retail pharmacy outlets nationwide (excluding wholesale only pharmacies). The sample size was calculated using formula 1.

With a population size of 5,032 active retail pharmacy outlets, the assumption that 50% (conservative) of retail pharmacy outlets stock at least one of the targeted commodities or products, confidence level of 99%, z-score of 2.5758, Precision +/- of 5%, the minimum calculated sample size was 587 active pharmacy retail outlets. The sample was adjusted for design effect by multiplying it by a factor of 1.5 (recommended effect size for steps survey) resulting in a sample size of 881. Table 3 shows the distribution of the sample of retail pharmacy outlets by region.

Table 2. 3: Total number of pharmacies and sample size by region

No.	Region	Sampled no. of districts	No. of registered Pharmacies	Percent of sample	Sample size	Adjusted sample size
1	Western	8	218	4.3	38	38
2	Central	12	250	5.0	44	44
3	Greater Accra	12	2,772	55.1	485	485
4	Volta	9	98	1.9	17	17
5	Eastern	15	197	3.9	34	34
6	Ashanti	17	1,046	20.8	183	183
7	Western North	5	30	0.6	5	15
8	Ahafo	4	40	0.8	7	20
9	Bono	7	110	2.2	19	19
10	Bono East	6	71	1.4	12	12
11	Oti	5	8	0.2	1	4
12	Northern	4	104	2.1	18	18
13	Savannah	3	9	0.2	2	5
14	North East	3	5	0.1	1	3
15	Upper East	6	46	0.9	8	23
16	Upper West	4	28	0.6	5	14
	Total	120	5,032	100.0	881	934
	Calculated sample		881			

Sampling procedure: The sampling procedure for pharmacies within the district was in two stages (the district capitals of all regions were included in the sample of districts). At the first stage, the calculated sample size of 881 was divided proportionately by the total number of pharmacies in each region (Table 3). At the second stage, the sample assigned to each region was proportionately divided by the total number of pharmacies in each selected district. However, the sample of 881 was further adjusted to 934 by adjusting the sample size of regions that had less than 10 pharmacies to about half the number of pharmacies in the region to enable us to get a reasonable sample size for regional level analysis. Rural urban dynamics were taken into consideration in selecting pharmacies.

Selection procedure: The list of potential pharmacies to be surveyed was not pre-selected to ensure randomness in the selection of pharmacies. Assigned data collectors visited the selected districts and randomly identified the first pharmacy outlet and explained the study in detail to the potential pharmacy and screen to determine eligibility (Table 4) including their willingness to participate in the study. If the potential pharmacy met the inclusion criteria, they were surveyed. If the pharmacy was not ready for the survey the same day, a date and time was set for the survey to be conducted at a different time, but within the study period. After conducting the first interview, data

collectors visited the next pharmacy (one data collector was assigned to each selected district to avoid repeated visits). In case a pharmacy outlet refused to participate in the survey, the data collector moved on to the next pharmacy until the number of pharmacies required in the district is reached. It is important to note that in Ghana the distance between the proposed site and other retail facilities is guided by accessibility to the facilities, population and distances criteria (400m radius).

Table 2. 4: Inclusion criteria for pharmacies

- Pharmacy registered with the Pharmacy Council of Ghana
- Located within the study area
- Willing to participate (owner/designee)
- Consent to participate

2.1.2.3   Selection of over-the-counter medicine sellers

Sample size calculation: In this retail audit, OTCMS are operationalized as outlets that are licensed to engage in the retail supply of ONLY Over-the-Counter Medicines (i.e., class C medicines). The target population for this data collection activity was private sector over-the-counter medicine sellers across all the16 regions of Ghana. The complete list of OTCMS in the country was requested from the Pharmacy Council and used as the sampling frame. The data from Pharmacy Council showed that as of June 2023, there were 24,935 OTCMS with complete geographic information (i.e., address). The sample size was calculated using formula 1.

With 24,935 active OTCMS in the country, the assumption that 50% (conservative) of the OTCMS stock at least one target commodity or product, confidence interval of 99%, z-score of 2.5758, Precision +/- of 5%, the minimum calculated sample size was 647. The calculated sample size of 647 was multiplied by a standard factor of 1.5 (to account for design effect), resulting in a total sample size of 971. The sample size of 971 was adjusted to 1076 by standardizing the allocated sample size per region to a minimum of 30 to get a reasonable sample for regional analysis. The total sample size was distributed as follows. The sample size of 1076 OTCMS was divided proportionately to the number of OTCMS in each region. Table 2.5 shows the distribution of OTCMS and sample size by region in Ghana.

Table 2. 5: Total number of OTCMS and sample size by region

No.	Region	Sampled no. of districts	No. of registered OTCMS	Percent of sample	Sample size	Adjusted sample size
1	Western	8	2,234	9.0	87	87
2	Central	12	2,972	11.9	116	116
3	Greater Accra	12	5,231	21.0	204	204
4	Volta	9	1,015	4.1	40	40
5	Eastern	15	2,437	9.8	95	95
6	Ashanti	17	5,099	20.4	199	199
7	Western North	5	816	3.3	32	32
8	Ahafo	4	494	2.0	19	30
9	Bono	7	1,179	4.7	46	46
10	Bono East	6	1,088	4.4	42	42
11	Oti	5	302	1.2	12	30
12	Northern	4	888	3.6	35	35
13	Savannah	3	216	0.9	8	30
14	North East	3	123	0.5	5	30
15	Upper East	6	446	1.8	17	30
16	Upper West	4	395	1.6	15	30
	Total	120	24935	100.0	971	1076
	Calculated sample		971			

Sampling procedure: The sampling procedure was in two stages (the district capitals of all regions would be included in the sample of districts). At the first stage, the calculated sample size of 971 was divided proportionately by the total number of OTCMS in each region. At the second stage, the sample assigned to each region was proportionately divided by the total number of OTCMS in each selected district. Rural-urban dynamics were taken into consideration in selecting OTCMS.

Recruitment procedure: The potential list of OTCMS to be audited was not pre-selected to ensure randomness in the selection of OTCMS. Assigned data collectors visited the selected districts and randomly identified the first OTCMS outlet and explained the study in detail to the potential OTCMS and screen to determine eligibility (Table 2.6) including their willingness to participate in the study. If the potential OTCMS met the inclusion criteria, they were surveyed. If the OTCMS was not ready for the survey the same day, a date and time was set for the survey to be conducted at a different time, but within the study period. After conducting the first interview, data collectors visited the next OTCMS (one data collector was assigned to each selected district to avoid repeated visits). In case an OTCMS outlet refused to participate in the survey, the data collector moved on to the next OTCMS until the number of OTCMSs required in the district is reached. It is important to note that district centres and other towns where facilities are inadequate, proposed location should not be less than 1 km by radius.

Table 2. 6: Inclusion criteria for OTCMS

• OTCMS registered with the Pharmacy Council of Ghana • Located within the study district • Willing to participate • Consent to participate

2.1.2.4   Selection of corner shops

Sample size calculation: In this survey, corner shops were operationalized as small retail stores that sell a variety of everyday items, such as groceries, snacks, drinks, among others. They are usually located in residential areas or on

street corners to serve the convenience of customers in the form of metal containers and wooden shops, kiosk and small in-house shops). The target population for this data collection activity is corner shops in the 16 regions of Ghana.

Data from the Ghana's 2021 population and housing census showed that there were 1,754,506 **c**ommercial structures (e.g., metal, wooden, kiosk). This was used as the proxy target population for the sample calculation. The sample size was calculated using formula 1.

With 1,754,506 "corner shops", the assumption that 50% (conservative) of the corner shops stock at least one targeted commodity or product, confidence interval of 99%, z-score of 2.5758, precision +/- of 5%, the minimum calculated sample size was 647. The calculated sample size of 664 corner shops was adjusted for design effect by multiplying the sample size by a constant factor of 1.5 (to account for design effect) resulting in a sample size of 1000. The sample size of 1000 corner shops were divided proportionately to the number of corner shops in each region. The sample size of 1000 was adjusted to 1120 by standardizing the allocated sample size per region to a minimum of 30 to get a reasonable sample for regional analysis. See the details of the sample size by region in Table 2.7.

Table 2. 7: Total number of corner shops retail outlets and sample size by region

Region	Sampled no. of districts	No. of selected districts per region	Number of corner shops retail outlets	Percent of sample	Sample size	Adjusted sample size
Western	8	9	126,358	7.2	72	72
Central	12	14	162,043	9.2	92	92
Greater Accra	12	19	429,985	24.5	245	245
Volta	9	12	67,148	3.8	38	38
Eastern	15	21	230,455	13.1	131	131
Ashanti	17	28	352,408	20.1	201	201
Western North	5	6	74,127	4.2	42	42
Ahafo	4	4	49,180	2.8	28	30
Bono	7	8	96,466	5.5	55	55
Bono East	6	7	59,069	3.4	34	34
Oti	5	5	24,946	1.4	14	30
Northern	4	10	40,309	2.3	23	30
Savannah	3	4	7,723	0.4	4	30
North East	3	4	3,828	0.2	2	30
Upper East	6	10	20,935	1.2	12	30
Upper West	4	7	9,526	0.5	5	30
Total	120	168	1,754,506	100.0	1000	1120
Sample			1,000			

Sampling procedure: The sampling procedure was in two stages. At the first stage, the sample size of 1000 was divided proportionately by the total number of corner shops in each region and adjusted appropriately. At the second stage, 20% of the interviews assigned to each region was conducted in the district capital and the rest was divided equally among the selected districts where possible.

Recruitment procedure: The potential number of corner shops to be audited was not pre-determined. However, in the district, data collectors were required to audit corner shops that were 100 meters apart from each other in the communities, unless there are not enough corner shops. Once a potential corner shop is identified, the data collectors explained the study in detail to the potential corner shop and screen to determine eligibility including their willingness to participate in the study (Table 2.8). If a potential corner shop met the inclusion criteria, they were surveyed. If the corner shop was not ready for the survey the same day, a date and time would be set for the survey to be conducted at a different time, but within the study period.

Table 2. 8: Inclusion criteria for corner shops

• Located within the study district • Willing to participate • Consent to participate

2.1.2.5   Selection of modern trades

<u>Sample size calculation:</u> In this study, modern trade retail outlets were defined as outlets that are usually larger and/or more organized than corner shop outlets, which include supermarkets, mini-marts, fuel station marts and convenience stores that often sell general goods/products. The target population for this data collection activity is modern trades across all 16 regions of Ghana. With no complete list of modern trades, the sample size was calculated as follows:

$$n = \frac{Z^2_{(1-\alpha/2)}P(1-P)}{d^2} \qquad (2)$$

Where,

n = sample size

Z = 1.96 (standard)

P = 0.50 (conservatively estimated proportion of modern trades outlets that carry targeted commodities or products)

d = 0.05 (5% absolute precision or margin of error)

The initial sample size derived from this formula was 384 modern trade outlets. The calculated sample size was multiplied by a standard factor of 1.5 (to account for design effect). This resulted in a sample size of 576.24 ≈ 576 modern trades. The sample size of 576 was adjusted to 759 by standardizing the allocated sample size per region to a minimum of 30 to get a reasonable sample for regional analysis.

It is important to note that the regional distribution of corner shops was used to apply to the sample size calculated for modern trades to distribute the sample across regions.

Table 2. 9: Distribution of the sample of modern trades by region in Ghana.

Region	Sampled no. of districts	No. of selected districts per region	Number of modern trade retail outlets[1]	Percent of sample[1]	Sample size	Adjusted sample size
Western	8	9	126,358	7.2	41	41
Central	12	14	162,043	9.2	53	53
Greater Accra	12	19	429,985	24.5	141	141
Volta	9	12	67,148	3.8	22	30
Eastern	15	21	230,455	13.1	76	76
Ashanti	17	28	352,408	20.1	116	116
Western North	5	6	74,127	4.2	24	30
Ahafo	4	4	49,180	2.8	16	30
Bono	7	8	96,466	5.5	32	32
Bono East	6	7	59,069	3.4	19	30
Oti	5	5	24,946	1.4	8	30
Northern	4	10	40,309	2.3	13	30
Savannah	3	4	7,723	0.4	3	30
North East	3	4	3,828	0.2	1	30
Upper East	6	10	20,935	1.2	7	30
Upper West	4	7	9,526	0.5	3	30
Total	120	168	1,754,506	100.0	576	759
Sample			576			

[1]used as a proxy for non-traditional retail outlets

Sampling procedure: The sampling procedure was done in two stages. At the first stage, the sample size of 576 was divided proportionately by the total number of corner shops (used as a proxy) in each region. At the second stage, 20% of the assigned sample to the region was conducted in the district capital and the rest was divided equally across the selected districts where possible.

Recruitment procedure: The potential number of modern trades to be surveyed was not pre-determined. However, in the district, data collectors would be required to audit modern trades that are 100 meters radius from each other in the communities, unless there are not enough modern trades outlets. Once a potential modern trade is identified, the data collector will explain the study in detail to the potential modern trade and screen to determine eligibility including their willingness to participate in the study (Table 2.10). If a potential modern trade meets the inclusion criteria, they will be surveyed, if the modern trade is not ready for the audit the same day, a date and time would be set for the audit to be conducted at a different time, but within the study period.

Table 2. 10: Inclusion and exclusion criteria for modern trades

> - Located within the study district
> - Willing to participate
> - Consent to participate

2.2   Data Management

Data: Data for this study was quantitative, collected directly, using a tablet based electronic data capture system (Open Data Kit Collect). The system was programmed to have embedded data checks as well as pre-defined skip patterns and prompt mechanisms for immediate data queries. Each tablet was password protected to keep information of outlets safe. The password was accessible to the data collector and the TFHO study team. At the end of each day, data was uploaded to a secured server at TFHO (data collectors were trained on how to secure the tablets in their possession). Hard copy documents such as the screen forms were kept securely by the data collectors. The study team from TFHO collected the paper-based documents from the data collectors during monitoring and supervision visits and locked them in a secured cabinet at the TFHO office in Accra, Ghana. Access

to the documents was strictly limited to the research team. Data collectors were trained in how to keep information about outlets confidential.

2.2.1   Data analysis

The data from the retail audits was exported into STATA MP version 18 (Stata Corp, College Station, TX, USA) statistical software for cleaning and analysis.

- The outlet was the unit of analysis.
- The analysis was performed separately by commodity type
- For each commodity type, analysis was stratified by the type of outlets from which the commodity was surveyed from.
- For categorical variables such as region and outlet types, the data was analysed using descriptive statistics such as frequencies and percentages
- For continuous variables such as prices of commodities, the data was analysed using descriptive statistics including minimum, 25th percentile, median, 75th percentile, maximum, mean and standard deviation.
- Availability of commodities of interest in the study was estimated at the national and regional levels stratified by the type of outlets and brands of commodities.
- The average unit cost of commodities and the corresponding dispersion was estimated at the national and regional levels stratified by the type of outlets and brands of commodities (using mean, median, minimum, maximum, standard deviation and interquartile range).

2.3   Instrument Development

The audit instrument was developed by the study team in collaboration with experts in the field using information from previous retail audits and peer-reviewed literature. The team revised the instrument to ensure that it met the needs of this audit. Further, the instrument was also pilot tested to ensure validity and reliability of the questions before use in the main study.

2.4   Quality Control

Various quality control checks were put in place to ensure data quality. Specifically,

- data collectors (auditors) recorded all outlets visited on a contact sheet.

- GPS co-ordinates were collected prior to the start of data collection.

- the data collection system wase programmed to have embedded data checks as well as pre-defined skip patterns and prompt mechanisms for immediate data queries.

- data collectors (auditors) were required to double check data collected before progressing to subsequent sections of the instrument.

- there was constant engagement (in-person and over the telephone) between the data collectors and supervisors.

- completed surveys were reviewed by supervisors and thoroughly checked by the data manager to validate the data.

Additionally, the study team also implemented the following to further improve quality of the data:

- a sample of 10% of the visits were spot checked by a supervisor

- a sample of 10% of the surveyed outlets were physically back checked by a supervisor

2.5   Recruitment and Training of Personnel

Recruitment: Experienced data collectors with post-secondary degrees were recruited from the respective regions as data collectors for the study. Preference was given to those who express interest in taking part in the entire study and are fluent in the predominant local language(s) of the respective regions.

The study team used existing contacts in the selected regions to identify potential data collectors. When potential data collectors were identified, the research team reviewed their resumes, briefly introduced them to the study and conducted short interviews with them. The interviews assessed the potential data collectors' background and ascertained their interest, availability during the study period, familiarity with data collection, among others. At the end of the interviews, the research team came to a consensus and selected the required number of data collectors needed in each region.

Training: The study team facilitated a 3-day training workshop that covered interviewing techniques (emphasizing retail audits), research ethics, and orientation to the specific procedures and tools for the study. Data collection instruments were discussed in detail, practiced in English and the local languages as appropriate, pre-tested, and revised as needed. The data collectors were also trained to listen and observe intently without displaying any judgmental attitude regarding information they receive from the outlets and on other critical ethical issues when gathering information from the outlets.

The outlets used for the pre-test were selected for convenience and located near the data collector training sites. Data collectors were also taken through role plays as part of practice during training. Pre-test data was used to provide detailed feedback and strengthen interviewing skills and the instrument. Outlets that participate in the pre-test were not included in the main study. However, they were informed that the interview was for training purposes. All pre-test data were subsequently deleted and not included in the study analysis. Supervisors were also trained in how to supervise data collectors and implement quality control measures. The training also covered daily reporting strategies to TFHO staff.

Supervision plan: Data collectors reported to the supervision team made up of the study team. At least two supervision team members were assigned to each region for the period of the data collection.

Figure 2. 1: Map of Ghana showing the survey districts by region

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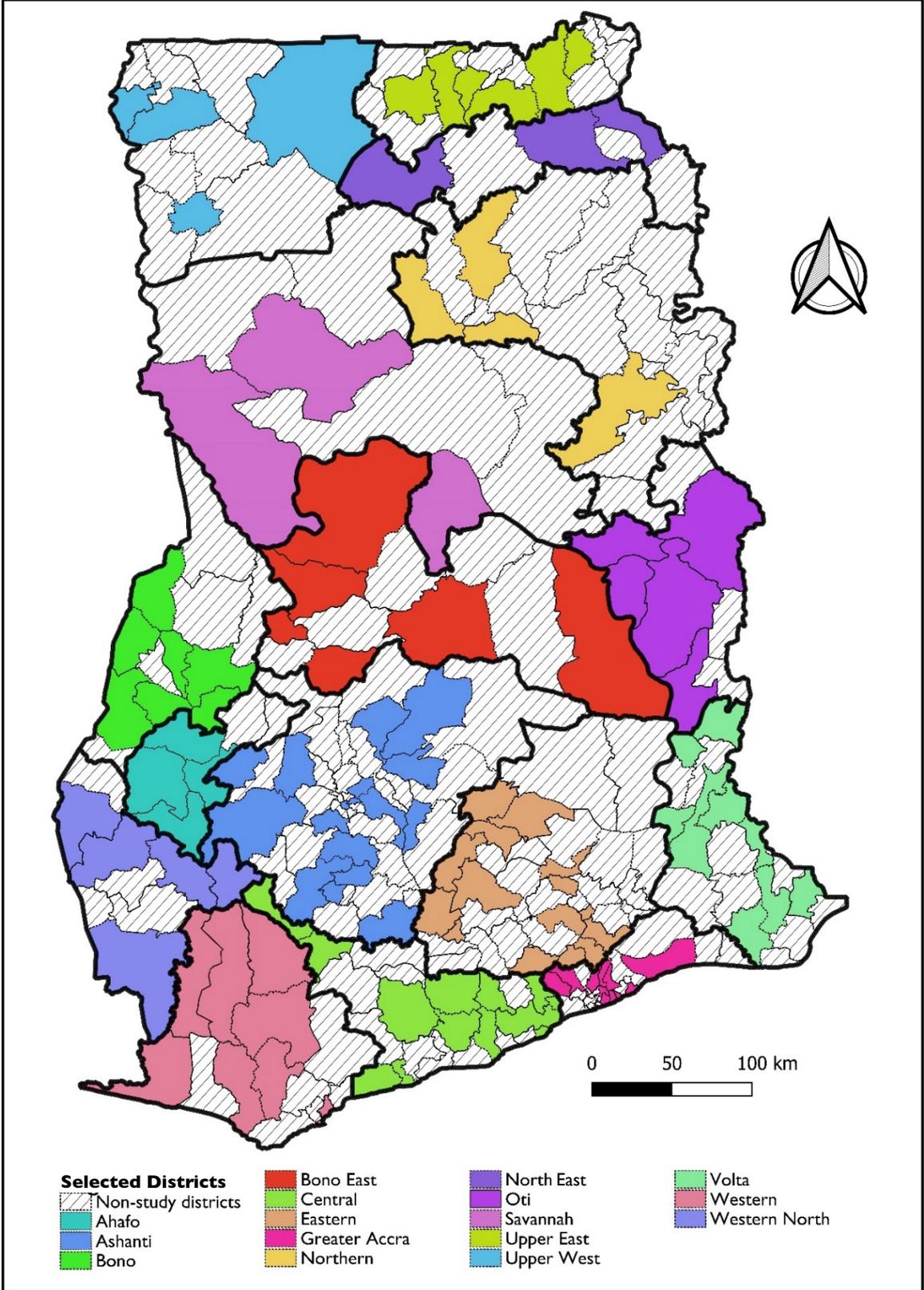
Sampling Statistics

3 Sampling Statistics: Expected and Actual

3.1 Expected v Actual Sample

The expected sample for the survey was 3,885 retail outlets across the 16 regions of Ghana. However, a total of 3,899 retail outlets were surveyed, corresponding to 100.4% performance rate (Table 3.1).

From Table 3.1, North East region had the highest performance rate of 106.5% (n=93/99) and the Greater Accra region had the lowest overall performance rate of 98.8% (n=1,075/1,062). The other regions attained a performance rate of at least 100%.

Table 3.2 shows the sample statistics of expected versus actual sample size achieved by region and type of outlet. Corner Shops had the highest performance rate of 106.4% (n=1,120/1,192), followed by OTCMS (103.4%-n=1,076/1,113), Pharmacies (96.3%-n=934/899) and Modern Trades (91.6%-n=759/695). With respect to OTCMS, the minimum performance rate was at least 100.0% across all the regions. Regarding Coner Shops, it was only in one region where performance rate was below 100.0% (Greater Accra region, 97.6%); however, six regions had performance rates below 100% for Pharmacies, which was similar for Modern Trades.

| Table 3. 1: Sample statistics by region			
	All retail outlets		
Region	Expected	Actual	Performance
Western	238	241	101.3%
Central	305	305	100.0%
Greater Accra	1,075	1,062	98.8%
Volta	125	126	100.8%
Eastern	332	334	100.6%
Ashanti	699	708	101.3%
Western North	119	119	100.0%
Ahafo	110	111	100.9%
Bono	152	153	100.7%
Bono East	118	121	102.5%
Oti	94	94	100.0%
Northern	113	113	100.0%
Savannah	95	95	100.0%
North East	93	99	106.5%
Upper East	113	113	100.0%
Upper West	104	105	101.0%
Total	3,885	3,899	100.4%

Table 3. 2: Sample statistics of expected versus actual sample size achieved by region and type of outlet.

Region	Pharmacies			OTCMS			Modern Trades			Corner Shops		
	Expected	Actual	Performance (%)	Expected	Actual	Performance (%)	Expected	Actual	Performance (%)	Expected	Actual	Performance (%)
Western	38	39	102.6	87	87	100.0	41	41	100.0	72	74	102.8
Central	44	36	81.8	116	124	106.9	53	53	100.0	92	92	100.0
Greater Accra	485	460	94.8	204	223	109.3	141	140	99.3	245	239	97.6
Volta	17	17	100.0	40	40	100.0	30	30	100.0	38	39	102.6
Eastern	34	31	91.2	95	99	104.2	76	63	82.9	131	141	107.6
Ashanti	183	183	100.0	199	199	100.0	116	122	105.2	201	204	101.5
Western North	15	15	100.0	32	32	100.0	30	30	100.0	42	42	100.0
Ahafo	20	18	90.0	30	32	106.7	30	30	100.0	30	31	103.3
Bono	19	19	100.0	46	46	100.0	32	33	103.1	55	55	100.0
Bono East	12	14	116.7	42	42	100.0	30	30	100.0	34	35	102.9
Oti	4	3	75.0	30	31	103.3	30	20	66.7	30	40	133.3
Northern	18	18	100.0	35	35	100.0	30	25	83.3	30	35	116.7
Savannah	5	5	100.0	30	30	100.0	30	4	13.3	30	56	186.7
North East	3	4	133.3	30	33	110.0	30	14	46.7	30	48	160.0
Upper East	23	22	95.7	30	30	100.0	30	30	100.0	30	31	103.3
Upper West	14	15	107.1	30	30	100.0	30	30	100.0	30	30	100.0
Total	934	899	96.3	1076	1,113	103.4	759	695	91.6	1,120	1,192	106.4

Figure 3.2 shows the geographic location of retail outlets that were surveyed across the country by types of retail outlet

The four graphs illustrate the geographic distribution and types of retail outlets surveyed across Ghana, showing how outlets are spread from the densely populated southern corridor through the middle belt to the more sparsely distributed northern regions. The graphs provide a concise overview of national coverage, outlet-type diversity, and sampling balance, demonstrating that the survey captured a wide range of commercial environments relevant to emergency contraception access.

Figure 3. 1: Geographic location of surveyed retail outlets
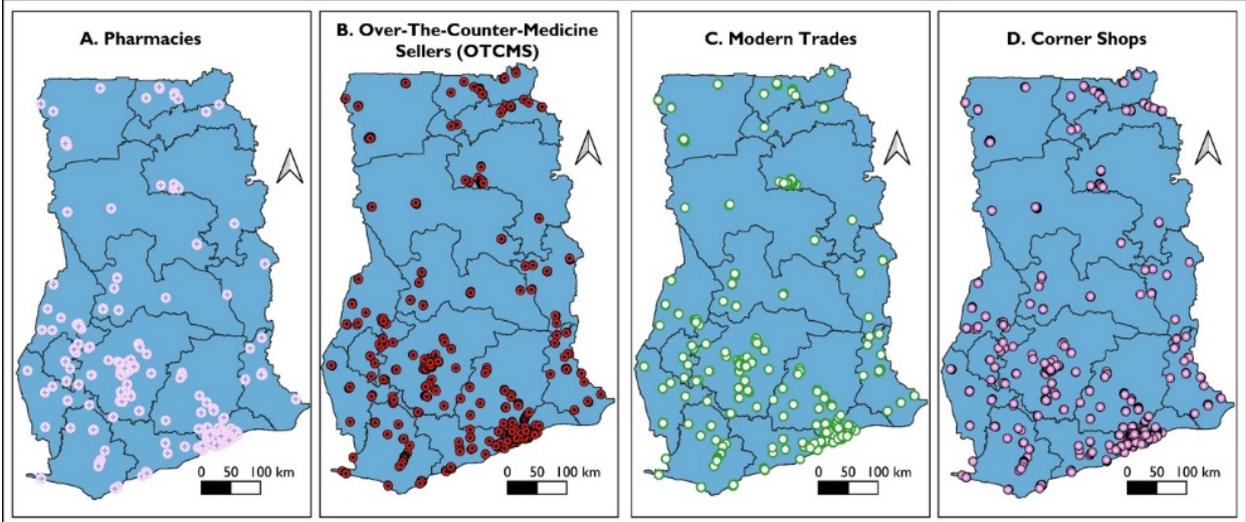
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