## Joint Effect/Interaction of Detailing and Trainings on Coverage of Family Planning Products Among Selected PPMV Shops in Nigeria

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#### To cite this article

Babajide Oluseyi Daini, Adedotun Umul-Khair Anibi, Boladale Akin-Kolapo, Oluwole Ayodele Fajemisin. Joint Effect/Interaction of Detailing and Trainings on Coverage of Family Planning Products Among Selected PPMV Shops in Nigeria. *International Journal of Public Health Research*. Vol. 6, No. 2, 2018, pp. 26-34.

Received: March 6, 2018; Accepted: March 27, 2018; Published: April 27, 2018

### Abstract

Across many countries in Sub-Saharan Africa, Drug shops are usually the first point of care-seeking in most communities. Studies in Nigeria have found that PPMVs generally have low health knowledge and health treatment practices (especially for Family planning (FP)) ultimately affecting stocking patterns of products. Limited evidence suggests that PPMV knowledge and practice can be improved through interventions, particularly those that go beyond just training but include an integrated approach addressing both supply and demand-side factors. This study therefore aimed to assess the effects of the strategies (PPMV Trainings and Detailing) employed by the ESMPIN Project and examine the joint effect of these on coverage/stocking of FP products among selected PPMV Shops. A cross-section of 8,294 PPMV shops were selected systematically across 25 program states. Questionnaires were administered using personal digital directory (PDA); Data was reported as frequencies and percentages, bivariate analysis was done using the chi-square test and Multivariate regression analysis (using 3 models) was used to assess the association between training, detailing and coverage on FP Products. About one-third of PPMV shops were in rural areas (32.4%), 37.4% of shops interviewed, had at least one person who had attended training supported by ESMPIN/SFH and 27.6% had been visited by an ESMPIN/SFH Detailer. Nearly all (97.8%) attendees attended within 3 years prior to the study. There was significant association noticed between PPMV training attendance and stocking of Gold circle condom, Combination 3 and Postinor-2 (P=0.002, P<0.001, P<0.001 respectively), Detailing was also significantly associated with the mentioned FP Products (P<0.001). There was a 45% increased likelihood of having good coverage of FP products among trained-PPMV shops compared to those not-trained (OR=1.45, CI=1.326-1.588). A significant and larger association was found for effect of Detailing on coverage of products; odds of having good coverage were significantly higher among PPMVs detailed compared to those not detailed (OR=1.65, CI=1.50-1.82). The interaction term of training and detailing showed significant relationship with coverage of products; PPMV shops where we have both trained and conducted detailing were 2.1 times more likely to have good coverage of FP products than those not trained or detailed (AOR=2.01 CI=1.85-2.38). Training and detailing are important, and independently influence the behaviours of PPMVs regarding FP service provision and product stocking. However, a combination of both interventions in the same model would yield a multiplied effect and influence on PPMVs stocking practices and coverage of FP products.

## Keywords

PPMVs, Family Planning Products, Training, Detailing and Coverage/Stocking

## 1. Background

Across many countries in Sub-Saharan Africa (including Nigeria), Drug shops offer an alternative, when there are supply shortages in the health sector and are usually the first point of care-seeking in most communities [1-2]. As reported by the National demographic health survey, more than half (60%) of contraceptives users in Nigeria obtain their contraceptives from the private medical sectors [3]. Major reasons noted for this occurrence in several studies includes the absence of formalities, less time spent with the PPMVs before being attended to, proximity of the outlets to homes of clients and Perception of clients that they will pay more at a health facility [4]. PPMVs are increasingly being recognized as important providers of health commodities, as interest continues to grow among policy makers and Program implementers regarding their engagement in Primary Health care delivery in Nigeria [2].

PPMVs are defined as "a person without formal training in pharmacy who sells orthodox pharmaceutical products on a retail basis for profit" [5]. They were established as a category of retailer by the Ministry of Health to provide a source of medicine in communities with high unmet need for health services and family planning in particular [6]. Its owners are characterized as having completed mainly primary school education and do not require formal training in medicine and pharmacy, the PPMV shops may also have an apprentice who attends to clients when the owner is unavailable [2, 5, 7]. In most countries, drug shops vastly outnumber pharmacies and are convenient and popular sources for health care advice, treatment, and supplies, especially in rural and hard-to-reach areas, and they offer an opportunity to reach new and existing contraceptive users [8]. Owing to the peculiarity of this group, all feasible means of increasing access and method choice must be therefore explored to meet ambitious development and family planning goals [9-10].

Studies in Nigeria have found PPMVs generally have low health knowledge and health treatment practices [1, 11]. Some recent studies show that, only about 30% had received any training on family planning provision at any time [12-13]. This has been shown over time to be associated with some negative attitudes expressed by PPMVs on FP and ultimately affecting their stocking patterns and the quality of information they render to clients seeking these services [13]. However, it has been shown that some PPMVs mask sentiments in their practical dealings with their clients (especially young clients) due to the exigencies of running a profitable business and thus still stock or display preventive and restorative sexual reproductive health products such as condoms and oral/Emergency contraceptives which sell relatively fast and are very profitable [14].

A systematic review among PPMVs showed that although the quality of services provided by PPMVs was generally poor across all health areas (including FP) [1], evidence may suggest that PPMV knowledge and practice can be improved through interventions, particularly those that go beyond just training but that include an integrated approach intervention addressing both supply and demand-side factors [2]. Other studies also suggested that the most effective interventions are those that targeted market or institutional environments, in addition to providing training [15].

SFH through the ESPMIN Project developed strategies (PPMV Trainings and Detailing Calls) to address these issues surrounding dearth of capacity among PPMVs in Nigeria and thus improve quality of coverage of a range of FP products which PPMVs are legalized to dispense. The PPMV shop training was aimed at improving the knowledge and service provision behaviour/skills of the PPMVs, this strategy included advocacy, pre and post-training planning, training proper, linkages and follow-ups. Demand Creation Representatives (specialized sales personnel) were tasked with the responsibility of increasing product sales through detailing calls (a form of medical detailing) to PPMV Shops. A typical detailing call to PPMV shops included provision of product information to PPMVs; dispelling misconceptions surrounding particular products and facilitation of information exchange. It also included expanding product positioning, developing product champions and ensuring that the products are available to and known by the public.

This study therefore aimed to evaluate the effects of these strategies and also examine the joint effect/interaction of detailing and trainings on coverage of family planning products among selected PPMV Shops in Nigeria.

## 2. Methodology

#### 2.1. Study Area and Sample Selection

A cross sectional survey was conducted in 2015 among PPMV shops across 25 program states in Nigeria. The sample was systematically chosen and represented the six geo-political zones in the country. The study areas consisted of all the local government areas in 24 states, plus the FCT. Sampling frame for this study was all Enumeration Areas (EAs) in both the rural and urban sectors of the respective states. Using a systematic sampling procedure, a total of 30 EAs were sampled from each sector. The total population for a sector was divided by 30 to obtain the Sampling Interval (SI). A random number between 1 and the SI was generated to serve as the Random Start (RS). By successively adding the SI to the RS, a set of 30 sequence values were generated.

The 30 EAs that have Cumulative Measure of Size (CMOS) corresponding to the 30 generated numbers were selected and used as the sampling units for this study. A total of 8294 PPMV shops were interviewed across the 25 selected states and shops interviewed were had been in existence for at least 6 months prior to the study.

#### 2.2. Data Collection

Questionnaires were administered using personal digital directory (PDA). The PDAs were coded and networked to a central server in Abuja through the internet. This made it easy for data collected at various locations to be transmitted to the server immediately they were collected. All interviews were conducted in the PPMV Shop where interviewers were able to observe product display on shelf as they conducted the interviews. Interviews were carried out in English language or the preferred language of the respondent (who was majorly the owner of the shop or the most senior apprentice in the drug shop).

#### 2.3. Outcome Measures

Major outcomes in this study included (1) Usually selling a specific FP product, (2) having the FP product available at time of study and (3) Composite coverage of FP products; which we defined as an aggregate of PPMVs usually selling and having available at time of visit, USAID's major FP products for PPMVs (Gold Circle and Combination-3). Major predictors in the study included; Training attendance (which was defined as PPMV shops in which at least one person has ever attended a training on family planning products and services), Frequency of training (defined as the number of times within the last three years in which a person in the PPMV shop had attended a training conducted by SFH/ESMPIN) and Detailing (defined as PPMV shops that have ever being visited by a SFH Demand Creation Representative). Another major predictor in this study was the interaction term of training and detailing which was created using a multiplicative scale (a product term in the regression models) and was used to assess the joint effects of training and detailing on FP product composite coverage [16].

#### 2.4. Data Analysis

Data was reported as frequencies and percentages to describe the various variables used in this study. Bivariate analysis was conducted among categorical variables using the chi-square test, especially to observe rural-urban difference between PPMV shops regarding FP product coverage and Multiple logistic regression was used to estimate the adjusted odds ratio (OR) and Confidence intervals (C.I) for the association and interaction between training, detailing and PPMV coverage on Family Planning Products.

Three models were employed for the multiple logistic regression; Model 1 examined the association between Training and Composite coverage of FP products while controlling for Detailing, Location and Geo-political zones. It also examines the association between Detailing and Composite coverage of FP products while controlling for Training, Location and Geo-political zones. Model 2 examined the association between Frequency of training and composite coverage of FP products while controlling for detailing, Location and Geo-political zones and finally, Model 3 examined the association between the interaction term of detailing/Training and composite coverage of FP products while adjusting for Location and Geo-political zones.

All analysis were done using SPSS (version 20) and STATA (version 14), all tests were 2 sided and p-values <0.05 was considered as statistically significant.

#### 3. Results

#### **3.1. Background Information**

We visited a total of 8294 PPMVs in the study. Majority of these were in the Urban areas (67.6%) and about one-third (32.4%) from the Rural areas. All geo-political zones were represented in the study, with North east contributing the least to the final sample (4.6%) and the largest sample coming from the North West (25.2%); other regions ranged from 10.7% to 23.3%.

The result also shows that 37.4% of all the PPMV shops interviewed, had at least one person who had attended a training supported by ESMPIN/SFH. Among the PPMVs who had ever attended such trainings, only 2.1% had not attended the training within the last three years, 37.6% had attended only once while 60.2% had attended the training at least twice in the last three years. It also shows that only 27.6% of all shops had ever been visited by an ESMPIN/SFH Detailer.

Table 1. Background Characteristics of PPMV outlets.

BACKGROUND CHARACTERISTICS	FREQUENCY (N=8294)	PECENTAGE (%)	
Location			
Urban	5604	67.6	
Rural	2690	32.4	
Geo-Political Zones			
North-West	2088	25.2	
South-South	1931	23.3	
South-East	1779	21.4	
South-West	1232	14.9	
North-Central	886	10.7	
North-East	378	4.6	
Exposure to Training			
Trained	3099	37.4	
Not-Trained	5178	62.6	
Exposure to Detailing			
Detailed	2285	27.6	
Not-Detailed	5992	72.4	



Figure 1. Frequency of Training Attendance among Trained PPMV outlets.

#### **3.2. Bivariate Analysis**

#### **3.2.1. Training and Demographics**

We conducted hypothesis testing to examine the relationship between our key outcome variables and the demography of PPMVs, The result show no significant association between training and location (Rural-Urban) as 38.0% of the urban PPMVs were trained compared to 36.2% trained in the rural outlets (P=0.102). Detailing however showed a significant association with location as more people in the urban areas (29.7%) had been visited at least once by a detailer compared to 23.3% in the rural areas (P<0.001).

 Table 2. Bivariate Analysis table comparing effects of Detailing and Training on Stocking of FP products.

				-		
	Trained N=3099	Not Trained N=5178	Sig.	Detailed N=2285	Not Detailed N=5992	Sig.
Location						
Urban	38.0	62.0		29.7	70.3	
Rural	36.2	63.8		23.3	76.7	**
Composite Coverage						
Good Coverage	59.4	50.2	**	62.5	50.2	**
Stocking of Family Planning Products (Usually Selling)						
Gold Circle	85.0	82.4	**	85.9	82.4	**
Combination 3	82.8	71.8	**	86.4	72.0	**
Postinor 2	34.9	27.4	**	40.1	26.4	**
Stocking of Family Planning Products N=Those usually selling	(Available at time of V	/isit)				
Gold Circle	74.6	73.3		75.6	73.0	*
Combination 3	74.7	63.2	**	78.9	63.2	**
Postinor 2	26.7	20.5	**	30.8	19.7	**

\*\* P-Value Significant at 1%

#### **3.2.2. Training and Access to FP Products**

#### i. Gold Circle

There was a significant association noticed between attendance of PPMV trainings and stocking of Gold circle product (P=0.002). This association however showed urbanrural differences; whereas a significant association was found in the rural areas (P=0.003) (*Eighty-four percent (84.1%) of the vendors who usually sell the Gold Circle had attended PPMV training compared to 79.4% who had not attended the*  training in rural areas), attendance of training showed no significant difference in the urban areas (P=0.101) (85.5% usually sell GC among those who had attended compared to 83.8% among those who had not attended). There was also a significant difference in the rural area between those who had attended training (74.1%) and those who had not (70.5%) in the rural areas for having gold circle product available in the shop at the time of the survey (P=0.05).

The findings also show that there was no significant association between frequency of PPMV training attendance

and access to (Stocking of) Gold Circle product in rural and urban areas, as well as in the general PPMV population.

#### ii. Combination 3

There was a significant association noticed between attendance of PPMV trainings and stocking of Combination 3 (P<0.001); 82.1% among those who had attended trainings compared to 71.8% among those who had not attended trainings. The percentage of the trained PPMVs who usually stock Combination 3 (Rural: 80.0%, Urban: 84.1%) was significantly higher than their untrained counterparts (Rural: 64.5%, Urban: 75.4%) in both rural and urban areas respectively (P<0.001).

There was also a significant difference in both the urban and rural areas between those who had attended training (Rural: 76.4%, Urban: 71%) and those who had not (Rural: 66.6%, Urban: 56.3%) for having Combination 3 available in the shop at the time of the survey (P < 0.001).

Frequency of exposure to training showed a significant association with stocking of Combination 3 product in the rural areas; result shows that the percentage of PPMVs who usually sell the product was increased significantly from 60% among those who had not been exposed in the last three years, to 76.8% among those who had attended once and finally rose to 83.0% among those who received the training at least twice within the last three years prior to the study (P=0.005). A similar pattern was also observed for having the product available at time of visit among those in the rural areas (Not attended in last 3 years: 55%, Attended once: 66.2% and Attended at least twice: 75.1%) (P=0.003). Frequency of exposure to training showed no significant association with stocking patterns in the urban areas.

#### iii. Postinor-2

The results show that there was a significant difference between the proportion of trained vendors who usually sold the Postinor-2 (29.2%) and that of their counterparts who were not trained (20.8%) in rural areas (P<0.001). Similar finding was obtained in urban areas where 37.5% of the trained vendors usually sold the product compared to 30.7%of the un-trained vendors (P<0.001). Regardless of the locations, the percentage of the trained PPMVs who usually had Postinor-2 in stock for sale was significantly higher than the percent recorded among the un-trained vendors who also usually sold the product (P<0.001).

There was also a significant difference in both the urban and rural areas between those who had attended training (Rural: 21.8%, Urban: 28.9%) and those who had not (Rural: 15.1%, Urban: 23.2%) for having Combination 3 available in the shop at the time of the survey (P<0.001).

Frequency of exposure to training showed a significant association with stocking of Combination 3 product in the rural areas; there was a significant difference of at least 15% between those who have not attended in the last three years and those who have attended, and another significant difference of 7.9% was noticed between those who have attended more than once. (Not attended in the last 3 years: 10%, Attended once: 25%, Attended more than once: 32.9%) (P<0.001). A similar pattern was also observed for having the product available at time of visit among those in the rural areas (Not attended in last 3 years: 5%, Attended once: 17.5% and Attended at least twice: 25.4%) (P=0.003).

Table 3.	Effect of	of Training	on Stocking	of FP	Products	(By	Location).
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<b>FP PRODUCTS</b>	URBAN		Sia	RURAL	Sia			
	Attended	Not Attended	- 51g.	Attended Not Attended		- 5ig.		
USUALLY SELLING PRODUCT								
Gold Circle	85.5	83.8		84.1	79.4	**		
Combination 3	84.1	75.4	**	80.0	64.5	**		
Postinor-2	37.5	30.7	**	29.2	20.8	**		
HAD PRODUCT AVAILAR	BLE AT TIME OF	VISIT						
Gold Circle	74.8	74.6		74.1	70.5	*		
Combination 3	76.4	66.6	**	71.0	56.3	**		
Postinor-2	28.9	23.2	**	21.8	15.1	**		

\*\* P-value Significant at 1%

\* P-value Significant at 5%

Table 4. Effect of Detailing on Stocking of FP Products (By Location).

FP and CS PRODUCTS	URBAN		C:-	RURAL	S:-			
	Detailed	Not Detailed	51g.	Detailed	Not Detailed	51g.		
USUALLY SELLING PRODUCT								
Gold Circle	86.4	83.6	**	84.3	80.1	*		
Combination 3	87.0	75.3	**	84.8	65.7	**		
Postinor-2	Postinor-2 42.5 29.3		**	33.9	20.8	**		
HAD PRODUCT AVAILAB	LE AT TIME OF V	ISIT						
Gold Circle	76.0	74.1		74.6	71.0			
Combination 3	79.6	66.4	**	76.8	57.0	**		
Postinor-2	33.3	22.0	**	24.3	15.4	**		

#### 3.2.3. Composite Coverage of Family Planning Products

We computed Composite coverage of FP products as an aggregate of PPMVs usually selling and having available at time of visit, USAID's major FP products for PPMVs (Gold Circle and Combination-3). Results show that more than half (53.6%) of all PPMVs interviewed had good coverage of FP products (i.e. usually selling and having at time of visit, Gold circle and Combination 3).

The findings further showed significant differences in the composite coverage of family planning (FP) by training attendance, frequency of attendance, detailing and locations. A significant difference was found between training attendance and composite coverage of Family Planning products (P<0.001); 59.4% of those who received training had good coverage of FP products compared to 50.2% among those had not received any training from ESMPIN/SFH. The frequency of attendance was also found to be significantly associated with having good coverage of FP products (P<0.001); the percentage of the PPMVs with good coverage of FP products was noticed to increase with increased exposure to training among those who had attended in the 3 years prior to the study; 60.2% among those who had attended trainings more than once in the last three years, compared to 57.0% among those who received the training just once and 52.8% among those who had not been exposed to the training in the last three years.

We also observed that the association between detailing and composite coverage of FP products was significant (P<0.001) with 62.5% of those who have been detailed having good coverage of FP products compared to 50.2% among those not detailed. Location was also found to be associated with composite coverage of FP was significant (P<0.001), with 55.8% of urban PPMVs having good coverage of FP compared to the 49.0% reported among PPMVs in the rural areas.



Figure 2. Composite Coverage of FP Products.



Figure 3. Frequency of Training and Composite Coverage.

# 3.3. Multivariate Analysis (Logistic Regression)

The result of the (bivariate) logistics regression analysis shows that the likelihood of having good coverage of FP products was significantly higher by 45% among trained-PPMVs (OR=1.45, CI=1.326-1.588) compared to untrained-PPMVs. When locations, regions and effect of detailing of PPMV shops were adjusted for, the result shows a reduced significant odds difference; shops in which we had trained at least one person were 1.35 times more likely to have good composite coverage of FP products compared to those in which we have not trained (AOR=1.35, CI=1.22-1.50). A significant and much larger association was found for effect of Detailing on coverage of FP products. Odds of having good coverage was significantly higher among PPMVs detailed than those not detailed (OR=1.65, CI=1.50-1.82). After adjusting for location, region and effect of training, results show an even more increased likelihood of having good coverage of FP products associated with Detailing (59% increased likelihood) than the 35% increased likelihood observed for PPMV trainings (AOR=1.59, CI=1.42-1.78).

Multivariate analysis also showed that increased exposure to these trainings do not significantly influence coverage of FP products in the sampled areas. After adjusting for cofounding variables (locations, regions and effect of detailing), there was an increased likelihood of having good coverage of FP products between PPMVs who had attended the training more than once in the last three years and those who had not attended or attended once; howbeit insignificant. Those who had attended more than once were 1.15 times more likely than those who had not attended or had attended once to have good coverage of FP products, (AOR=1.15 CI=0.99 - 1.35).

Results also show significant interaction in the effect of both training and detailing PPMVs. Interaction term of training and detailing showed a significant relationship with coverage of FP products. After adjusting for location and region, PPMV shops in which we have both trained at least one person and conducted detailing were 2.1 times more

likely to have good coverage of FP products than those in which we haven't trained or conducted detailing (AOR=2.01 CI=1.85-2.38).

Tabl	e 5.	Logistic	Regressio	n showing	Composit	e association	between	Training	/Detailing	g on Con	iposite (	Coverage o	of FP	products
							~ ~ ~ ~ ~						,	P

	Model 1		Model 2		Model 3		
Variables	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted	
variables	Odds Ratio						
	(C.I)***	(C.I)***	(C.I)***	(C.I)***	(C.I)***	(C.I)***	
Training							
No (Ref*)	-	-	-	-	-	-	
Yes	1.45 (1.33-1.59)	1.35 (1.22-1.50)	-	-	-	-	
Frequency of Training							
None/Once (Ref*)	-	-	-	-	-	-	
> Once	-	-	1.14 (0.99-1.33)	1.15 (0.99-1.35)	-	-	
Detailing							
No (Ref*)	-	-	-	-	-	-	
Yes	1.65 (1.50-1.82)	1.59 (1.42-1.78)		1.47 (1.26-1.72)	-	-	
Training # Detailing**							
No*No (Ref*)	-	-	-	-	-	-	
No*Yes	-	-	-	-	1.68 (1.43-1.98)	1.75 (1.48-2.07)	
Yes*No	-	-	-	-	1.33 (1.19-1.50)	1.42 (1.26-1.60)	
Yes*Yes	-	-	-	-	1.82 (1.62-2.05)	2.10 (1.85-2.38)	
Location							
Rural (Ref*)	-	-	-	-	-	-	
Urban		1.3 (1.16-1.40)		1.17 (1.00-1.38)	-	1.27 (1.16-1.40)	
Geo-Political Zones							
North-Central (Ref*)	-	-	-	-	-	-	
North East	-	0.45 (0.35-0.58)	-	0.28 (0.18-0.43)	-	0.45 (0.35-0.57)	
North-West	-	0.33 (0.28-0.39)	-	0.30 (0.23-0.39)	-	0.33 (0.28-0.39)	
South-East	-	0.40 (0.34-0.47)	-	0.51 (0.38-0.67)	-	0.40 (0.34-0.48)	
South-West	-	1.14 (0.94-1.37)	-	1.05 (0.75-1.46)	-	1.14 (0.94-1.37)	
South-South	-	1.06 (0.90-1.26)	-	1.05 (0.79-1.40)	-	1.06 (0.90-1.26)	

- Model 1 examines the association between Training and Composite coverage of FP products while controlling for Detailing, Location and Geo-political zones. It also examines the association between Detailing and Composite coverage of FP products while controlling for Training, Location and Geo-political zones. - Model 2 examines the association between Frequency of training and composite coverage of FP products while controlling for detailing, Location and Geo-political zones. - Model 3 examines the association between the interaction term of detailing/Training and composite coverage of FP products while adjusting for Location and Geo-political zones.

\*"Ref" means Reference Category

\*\*"Training # detailing" means Interaction Term of Training and Detailing

\*\*\*"C.I" means Confidence Interval

#### 4. Discussions

The findings from this study showed that PPMVs stock a variety of FP Products, especially those legally acceptable for their practice within the community, with more than half of them generally having good coverage of FP products. As several studies have suggested and do corroborate, PPMVs remain an important sect in the community especially in the rural and hard-to-reach areas, to provide services and offer opportunity to reach new and existing contraceptive users [8-10].

As several studies have shown, PPMVs are run by either the owner (the chief PPMV) or an apprentice who attends to clients, the focus in this study was not the person but the PPMV shop itself. We thus requested to know if anyone in the shop had ever been trained, if the shop has ever been detailed or both [2, 5, 7].

Despite the vast importance of the PPMVs in the community, this study showed that a lower percentage (37.4%) of them had been trained to provide services especially FP services, while only 27.6% had been detailed.

This finding on training is in agreement with the study of Ajuwon where only 39% had ever received training on FP provision [12], this however shows an increase from the study of Babatunde and Colleagues which noticed a 31% training prevalence among PPMVs regarding FP [13]. The low percentage of shops being detailed also shows the low level of support received by these category of providers, despite the suggestion of many studies to actively involve this group [5, 9, 10], especially those studies which have advocated for reaching them with interventions which not only focuses on training but addresses the supply and demand-side factors [2, 15].

As studies have suggested, training was found (during the bivariate analysis of this study) to be significantly associated with stocking of FP products (both usual stocking and pointin-time presence) and composite coverage of FP products [12-13]. Several studies have highlighted the link between training and other important factors for the delivery of services by PPMVs which include increasing their knowledge of FP products, improving them for the provision of accurate FP counselling and also changing their attitudes towards stocking of FP products [12-14], [17-19]. This study also found such associations not only for training but also between frequency of exposure to such trainings and stocking/coverage of FP products. Thus suggesting that not just training but continued exposure to training improves the stocking habits/coverage of FP products among PPMVs in Nigeria.

Detailing was also found in this study to be significantly associated with both stocking (usual and point-in-time presence) and composite coverage of FP products. The findings also showed that apart from the stocking of Gold Circle Condoms, the association between both training and detailing on stocking of FP products showed major urban/rural differences; with those in the rural areas being affected mostly when not trained or detailed. This therefore shows that the behaviours of shops in urban and rural areas are not similar regarding stocking of FP products and thus there is a need to focus on rural and hard-to-reach areas in order to bridge the wide gap which exists in the absence of support in form of trainings and detailing, which may in turn affect the provision of FP services to rural dwellers. This scenario is echoed by the study of Akol and Colleagues who advocated for reaching rural and hard-to-reach areas by improving the PPMVs in those places [8].

Findings from the multivariate analysis of this study also corroborated that which was seen in the bivariate and other studies earlier discussed, regarding composite coverage of FP products. Training showed increase coverage by nearly 40% having adjusted for location, region and the effect of detailing. Increased exposure to training however did not remain significantly important in influencing coverage of FP products; thus suggesting that increasing the number of trainings for PPMVs may only slightly increase coverage and stocking of FP products, but not significantly. Detailing on the other hand however showed to be more singly important for determining coverage of FP products; as detailing was seen to increase coverage by nearly 60%. Thus suggesting that detailing has more effect on coverage/stocking of FP products among PPMVs shops than Training; despite a larger number of shops having never been detailed.

The interaction between training and detailing (which was examined in this study) showed a significant association with coverage of FP products. It was noticed that after adjusting for all confounders, shops which were both trained and detailed were more than 2 times more likely to have good coverage of FP products, thereby stocking important FP products. This finding gives credence to the suggestion of studies which have suggested that the most effective interventions are those that target market or institutional environments and also integrate supply and demand-side factors, in addition to providing training [2, 15]. This therefore suggests that although training or detailing PPMVs is important and that either can independently influence the behaviours of PPMVs regarding FP service provision, these two have to be combined in the same model for influencing PPMVs for better practices regarding stocking and coverage of FP products.

## **5.** Conclusions

This research work to a large extent has shown that Training and detailing PPMVs are important, and can independently influence the behaviours of PPMVs regarding FP service provision and product stocking. However, the learning for future programming is that a combination of both interventions in the same model would yield a multiplied effect and influence on PPMVs practices regarding stocking and coverage of FP products.

We were also able to establish that independently, Detailing has more effect on coverage/stocking of FP products among PPMVs shops than Training; and that increased exposure of PPMVs to trainings may only slightly increase coverage and stocking of FP products, but not significantly. This study did not however assess the effects of increased detailing calls to PPMV shops so as to suggest increasing its frequency among PPMVs.

As with many other related studies on urban-rural differences in health states or indices, the behaviours of PPMV shops in urban and rural areas was not similar regarding stocking of FP products as shops in the rural areas differed most remarkably upon the distinction of trained/detailed or untrained/not-detailed. Thus, there is still a need to focus on rural and hard-to-reach areas in order to bridge the wide gap which exists in the absence of support in form of trainings and detailing, which may in turn affect the provision of FP services to rural dwellers.

## Acknowledgements

This work was derived from a study under the USAID-Supported Expanded Social Marketing Project in Nigeria (ESMPIN), implemented by the Society for Family Health, Nigeria. Cooperative Agreement Number 620-A-00-10-00016-00.

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