

# Medication Therapy Management: Awareness, Attitude and Practice of Community Pharmacists in Delta State

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## ABSTRACT

**INTRODUCTION:** Medication Therapy Management (MTM) is pharmaceutical care service which improves ways pharmacists manage patients' medication, minimize drug therapy problems by achieving definite outcomes and improving patient's quality of life. The need for MTM services in community pharmacies is of interest to the profession. The study aims to assess the level of awareness of MTM services among Pharmacists; to identify factors that affect pharmacists' attitudes towards providing MTM services, and to evaluate factors that influence the practice of MTM among community pharmacists in Delta State.

**RESULTS:** The total study sample was 118 community pharmacists, of which 66.9% were males. A total of 114 of the pharmacists interviewed had heard about MTM; 61.9% of them strongly agreed that they were qualified to provide MTM services, and 63.6% strongly agreed patient outcomes will improve when MTM services are provided. Furthermore, 68.5% of the pharmacist strongly agreed MTM will increase patient-pharmacist relationship, while 93.2% of them have provided MTM services in the past. There was significant association between qualification and MTM rating ( $p < 0.05$ ). There was also significant association between years of practice and MTM awareness ( $p < 0.05$ ).

**CONCLUSION:** It has been demonstrated that pharmacists in Delta State were aware of the Medication Therapy Management model of practice. Major factors like additional qualifications and number of years in practice affected their attitude towards providing MTM services and was found to be closely associated with practice of MTM among the community pharmacists surveyed in Delta State.

**KEY WORDS:** Medication Therapy Management (MTM), Community pharmacists, pharmaceutical care.

## INTRODUCTION

The profession of pharmacy has been integral to the delivery of drug therapy to patients since its inception, yet pharmacists commonly have been dissociated from the use, evaluation, and monitoring of drug therapy. Pharmacy has evolved and developed as a caring profession. However, the focus of that caring has shifted over time from the drug product to the patient. The clinical pharmacy era had pharmacist providing drug information and monitoring pharmacokinetics. [2]

A definition adopted by the consensus of pharmacy profession in 2004 state that Medication Therapy Management is a service or group of services that optimize therapeutic outcomes for individual patient. [3] Medication Therapy Medication (MTM) can also be defined as pharmaceutical care provided by pharmacists, aimed at optimizing drug therapy and improve therapeutic outcomes for patients. Eleven National Pharmacy Organizations adopted this definition in 2004. Medication Therapy Management includes a broad range of professional activities, including but not limited to performing patient assessment and/or a comprehensive medication review, formulating a medication treatment plan, monitoring efficacy and safety of medication therapy, enhancing medication adherence through patient empowerment and education, and documenting

and communicating MTM services to prescribers in order to maintain comprehensive patient care. [3] Medication Therapy Management includes five core components;

- A. MEDICATION THERAPY REVIEW (MTR)
- B. PERSONAL MEDICATION RECORD (PMR)
- C. MEDICATION-RELATED ACTION PLAN (MAP)
- D. INTERVENTION AND/OR REFERRAL
- E. DOCUMENTATION AND FOLLOW UP

An MTR is a systematic process of collecting patient and medication- related information which occurs during the pharmacist-patient encounter. In addition, the MTR assists in the identification and prioritization of medication-related problems. During the MTM encounter, the pharmacist develops a PMR for use by the patient. The PMR includes all prescription and non-prescription drug products and requires updating as necessary.

After assessing and identifying medication-related problems, the pharmacist develops a patient-specific MAP. The MAP is a list of self-management actions necessary to achieve the patient's specific health goals. In addition, the patient and pharmacist utilize the MAP to record actions and track progress towards achieving therapeutic goals. During the MTM session, the

pharmacist identifies medication-related problem(s) and determines appropriate intervention(s) for resolution. Often, the pharmacist collaborates with other health care professionals to resolve the identified problem(s). Following the patient encounter and/or intervention, the pharmacist must document his/her encounter and determine appropriate patient follow-up. Medication therapy management is a unique niche for the pharmacy profession, allowing pharmacists to apply their extensive medication knowledge as medication experts with the intent of improving patient outcomes.<sup>[3]</sup>

### **COMMUNITY PHARMACISTS AS MEDICATION MONITORS**

Community pharmacists have been identified as having an important contribution to make in the area of medication monitoring for ambulatory patients with chronic disease.<sup>[4]</sup> Community pharmacists are well positioned to monitor medications because health care consumers present to community pharmacies between clinic visits to refill prescription medications on an ongoing basis.<sup>[5]</sup> Over 3 billion prescription medications are filled annually by chain, grocery, independently owned, and other types of retail pharmacies in the U.S and the majority of these prescriptions are for chronic medications.<sup>[6]</sup>

A study showed that while pharmacists interact with patients less often for refill prescriptions compared to the initial fills, pharmacists do appear to engage patients on an ad hoc basis or when the patient initiates a discussion.<sup>[7]</sup> Few studies, however, have reported observed rates of pharmacist-patient interaction for refills since the 1990's;<sup>[7]</sup> one U.S study reported pharmacists interacted verbally with patients during 35% of refills; one of those encounters, 65% involved a pharmacist asking the patient a question about his or her medication.<sup>[8]</sup> The content of such encounters has been shown to vary.<sup>[9,8]</sup> For some patients, a pharmacist may simply greet the patient or ask, "Do you have any questions?" while in other encounters the patient and pharmacist engage in more complex exchanges where the patient's medications and medical conditions are discussed.<sup>[9,7]</sup>

In Nigeria, Community Pharmacists are often the first point of contact for patients with non-critical health-related and medication questions. A study done in Delta State showed that consumers were most satisfied with the pharmacists' professional attitude but dissatisfied with the provision of nondrug services in the community pharmacy. These services are mainly services based on the pharmaceutical care philosophy, like MTM. There is an opportunity for the community pharmacies to

introduce new services and enhance their consumer loyalty.<sup>[11]</sup> Community pharmacists are faced with the challenge of identifying and resolving medication-related problems for prescription and non-prescription medications, herbal and dietary supplements on a daily basis.

The aim of this study was to assess the awareness of MTM among Pharmacist, explore factors associated with pharmacists' attitudes towards MTMT and to evaluate the influence of years of practice and qualifications on the practice of MTM among community pharmacists

## **Materials and methods**

### **Study design**

This was a descriptive cross-sectional study design. This research was carried out in community pharmacies located in Warri (Warri North, South, South-West), Sapele, Abraka, Agbor, Asaba and Obiaruku, in Delta State.

### **Study population**

A comprehensive list of licensed pharmacy premises in Delta State was obtained from the secretariat of the Pharmaceutical Society of Nigeria (PSN), Delta state branch. Inclusion criteria for the study was respondents must be

registered community pharmacists, practicing in Delta state and present at their premises as at the time of this study. A total number of 119 pharmacists were recruited for this study..

## **Data collection**

### **Data collection tool**

The research instrument used in collecting data for this study was a pre-tested 20-item questionnaire which was designed to suit the research objectives. The 20-item questionnaire was pre-tested at community pharmacies in Ughelli, before final distribution of questionnaires to target population. The questionnaire was divided into four parts (Sections A-D) being socio-demographics, knowledge of MTM, attitude towards the provision of MTM services, and practice of the respondent on Medication Therapy Management.

### **Data collection method**

The researcher used a self-administered questionnaire which was prepared in English Language to assess the respondents' knowledge, attitude and practice of Medication Therapy Management. The researcher also made use of verbal communication to explain in some instances.

**Data analysis**

Questionnaires were retrieved, sorted, coded and fed into SPSS (Statistical Package for Social Science) version 20 spread sheet for descriptive and inferential statistics. One-way ANOVA (F) was employed to compare various responses in MTM awareness rating with qualification and years of practice. This test statistic was chosen to accommodate multiple comparisons. Sub group analysis using Post-Hoc test was done to see what direction significances were.

**Results**

After collection of data from various community pharmacies, the results were obtained and presented as follows. A total of 125 pre-tested

questionnaires were distributed but only 122 were retrieved. Retrieved questionnaires were sorted for validity (97% valid) and response rate determined (response rate was 94%). Therefore, 118 constituted the sample size for this study.

**Socio demographic characteristics**

Table 1 shows the demographic characteristics of all the respondents. Their qualifications showed 70.3% of the pharmacists had only B.Pharm; 25.4% of them had Pharm.D; 3.4% of them had a postgraduate degree. About 35.6% of the respondents had practiced for between five to ten years, 16.1% had practiced for ten years and over, however some respondents had less than 5 years of practice 24(20.3%).

**TABLE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS**

Item		Frequency N=118	Percent %
Sex	Male	79	66.9
	Female	39	33.1
Age (yrs)	20-30	42	35.6

	31-40	47	39.8
	41-50	24	20.3
	Over 50	5	4.3
<b>Qualification</b>	B.Pharm	83	70.3
	Pharm.D	30	25.4
	M.Pharm	4	3.4
	B.Pharm. & FPCPharm.	1	0.9
<b>Number of Yrs in practice</b>	Intern	31	26.3
	1 - <5	24	20.3
	5 - <10	42	35.6
	10 and over	21	17.8
Previous experience	Hospital only	47	66.1
	Academia only	2	1.7
	Industry only	5	4.2
	Hospital & Academia	2	1.7

Hospital & industry	5	4.2
Academia & industry	2	1.7
None	24	20.4

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**Level of awareness of MTM among community pharmacists:**

Table 2 presents how well respondents were aware of the MTM model of practice. Almost all, 114 (96.6%) of the pharmacists had heard about MTM, Most of them had learnt about MTM within the previous 5 years (73.7%) and mostly from online sources (34.2%) and seminars attended (31.6%).

Altogether, 61.9% of the pharmacists agreed that they were qualified to provide MTM services to patients based on their training as pharmacists, however, 3.4% admitted that their qualification does not equip them enough to provide MTM services to patients.

**TABLE 2: AWARENESS OF MTM BY RESPONDENTS**

Item		Frequency N=118	Percent %
<b>Heard about MTM?</b>	Yes	114	96.6
	No	3	2.5
	I don't know	1	0.9
<b>How long ago?</b>	Less than 5 yrs ago	87	73.7
	5 to 10 years ago	21	17.9
	Over 10 years ago	5	4.2
	Not sure	5	4.2
<b>Source of MTM knowledge.</b>	Journals	11	9.6
	Online	39	34.2
	Colleague	18	15.8
	Seminars	36	31.6
	More than one/all	10	8.8
<b>MTM familiarity rating</b>	Not familiar	10	8.5



	Familiar	52	44.1
	Very familiar	53	44.9
	Not sure	3	2.5
<b>Qualified to provide MTM to patients</b>	Strongly disagree	4	3.4
	Disagree	2	1.7
	Agree	39	33.0
	Strongly agree	73	61.9

### Attitude towards providing MTM services

Some questions were asked to assess the attitudinal predisposition of the respondents in providing MTM in their practice setting. The pooled attitude of the respondents towards provision of MTM was found to be very positive. Although, there were few cases of negative attitudes towards MTM reported as shown in table 3, however, 70.3% of respondents agreed that MTM is an important role of a pharmacist. Almost all respondents agreed that MTM will improve pharmacist-patient relationship. (see Table 3)

**TABLE 3: ATTITUDE OF RESPONDENTS TO PROVIDING MTM SERVICES**

Item	Frequency	Percent
	N=118	%

**Medication Management is an important aspect in the role of pharmacists**

Strongly disagree	7	5.9
Agree	28	23.7
Strongly agree	83	70.3

**Patients should receive information about their therapy.**

Strongly disagree	5	4.2
Disagree	12	10.2
Agree	42	35.6
Strongly agree	59	50

**Patients experience improved treatment outcomes when medications are monitored.**

Strongly disagree	3	2.5
Agree	40	33.9
Strongly agree	75	63.6

**MTM improves pharmacist-patient relationship.**

Strongly disagree	3	4.1
Agree	20	27.4

Strongly agree 50 68.5

**Practice of Medication Therapy Management among Community Pharmacists.**

Table 4 gives an overview of respondents’ practice of Medication Therapy management. Almost all respondents (93.3%) admitted to providing MTM, while even more (96.6%) reported keen interests in offering MTM services in the future. Increase in job satisfaction by providing MTM was reported among 90.7% of

the respondents. About 5.1% of them cited job dissatisfaction as a reason for not willing to provide MTM services to their clients. Fifty nine percent of the respondents expressed concern as to setting aside enough time to provide MTM services to patients. About equal proportion of the respondents admit to charging or not charging their clients for providing MTM.

**TABLE 4: PRACTICE OF MTM AMONG COMMUNITY PHARMACISTS**

Item		Frequency	Percent
		<b>N=118</b>	<b>%</b>
<b>Do you provide MTM services</b>	Yes	110	93.2
	No	5	4.2
	I don’t know	3	2.5

<b>Do you struggle with setting aside enough time to offer MTM services to patients?</b>	Yes	70	59.3
	No	47	39.8
<b>Will you offer MTM services?</b>	Yes	114	96.6
	No	2	1.7
	I don't know	2	1.7
<b>Is there a charge for MTM services offered?</b>	Yes	53	44.9
	No	49	41.5
	I don't know	16	13.6
<b>Is there increased job satisfaction in providing MTM services?</b>	Yes	107	90.7
	No	6	5.1
	I don't know	5	4.2

**Relationship between professional qualifications and MTM attitude rating:**

Respondents’ MTM attitude rating, based on their professional qualification is described in table 5a. About 34% of the respondents with a B.Pharm degree, 77.7% Pharm.D degree holders and all the respondents with an M.Pharm degree were very familiar with MTM and therefore had a positive attitude towards it. The Post Hoc test was also done to assess for statistical significance in the means of respondents who had a combination of different professional qualifications.

A one-way ANOVA was conducted to examine whether there were statistically significant differences among pharmacists with different levels of qualification in relation to their MTM familiarity rating. The results revealed statistically significant differences among the levels of qualification at  $p = 0.005$  (Table 5b). Post Hoc Games-Howell tests revealed statistically significant differences between pharmacists with a combination of B.Pharm and Pharm.D ( $p = 0.019$ ); B.Pharm and M.Pharm. ( $p < 0.001$ ), and then between Pharm.D and M.Pharm. ( $p = 0.003$ ).

**TABLE 5a: QUALIFICATION vs. MTM RATING**

Qualification	Rating				Total	
	not familiar	familiar	Very familiar	not sure		
B.Pharm	Count	9	43	<b>28</b>	2	82
	% within qualification	11.0%	52.4%	<b>34.1%</b>	2.4%	100.0%
Pharm.D	Count	1	9	<b>20</b>	0	30

	% within 3.3% qualification	30.0%	<b>66.7%</b>	0.0%	100.0%
	Count	0	0	5	5
M.Pharm	% within 0.0% qualification	0.0%	<b>100.0%</b>	0.0%	100.0%
	Count	10	52	<b>53</b>	2
Total	% within 8.5% qualification	44.4%	<b>45.3%</b>	1.7%	100.0%
	Count	10	52	53	117

**TABLE 5b: Qualification vs. MTM Rating**

(equal variances not assumed as Levene's p-value <0.05)

Variable	N	Mean±SD	p-value			
B.Pharm.	82	2.28±0.69		A	B	
Pharm.D	30	2.63±0.56	0.005	B.Pharm.	Pharm.D	0.019
M.Pharm.	5	3.00±0.00		Pharm.D	M.Pharm.	0.000
				Pharm.D	B.Pharm.	0.019
					M.Pharm.	0.003
				M.Pharm.	B.Pharm.	0.000

**Post Hoc Games-Howell multiple comparisons tests**

Pharm.D 0.003

p is significant at  $p < 0.05$

A one-way ANOVA was conducted to examine whether there is statistical evidence that there is an association between pharmacists' years of practice in relation to MTM rating (Table 6). The results obtained were statistically significant ( $p = 0.002$ ).

Table 6a shows respondents' years of practice in relation with their awareness of MTM rating, with the highest rating found among pharmacists who had practiced between 5 – 10 years post qualification. Only a few of the respondents (3.3%) who were mostly interns, were not sure.

Post Hoc Scheffe tests for multiple comparison revealed statistically significant difference between interns and pharmacists who had worked for 5 - <10 years ( $p = 0.002$ ) (Table 6b)

**TABLE 6a: YEARS OF PRATICE vs. MTM AWARENESS**

Years of practice		Rating				Total
		not familiar	familiar	<b>Very familiar</b>	not sure	
Intern	Count	5	19	<b>5</b>	1	30
	% within years of practice	16.7%	63.3%	<b>16.7%</b>	3.3%	100.0%
1-<5yrs	Count	2	10	<b>12</b>	0	24

i	% within years of practice	8.3%	41.7%	<b>50.0%</b>	0.0%	100.0%
	Count	2	10	<b>30</b>	0	42
5-<10yrs	% within years of practice	4.8%	23.8%	<b>71.4%</b>	0.0%	100.0%
	Count	0	12	<b>6</b>	1	19
10yrs and over	% within years of practice	0.0%	63.2%	<b>31.6%</b>	5.3%	100.0%
	Count	9	51	<b>53</b>	2	115
Total	% within years of practice	7.8%	44.3%	<b>46.1%</b>	1.7%	100.0%
	Count					

**TABLE 6b: YEARS OF PRACTICE vs. MTM AWARENESS**

Variable	N	Mean(±)	p-value
1-<5years	24	2.42±0.65	
5-<10years	42	2.67±0.57	
≥ 10years	19	2.42±0.61	
Intern	30	2.07±0.69	0.002*



**Post Hoc Scheffe multiple comparisons tests**

(equal variances assumed as Levene's p-value >0.05)

A	B	
Intern	1-<5years	0.251
	5-<10years	0.002*
	≥ 10years	0.299
1-<5years	Intern	0.251
	5-<10years	0.492

≥ 10years		1.000
5-<10years	Intern	0.002*
	1-<5years	0.492
	≥ 10years	0.573
≥ 10years	Intern	0.299
	1-<5years	1.000
	5-<10years	0.573

\*p is significant at < 0.05 level

**DISCUSSION**

Pharmacists in this study agreed that globally their services have been expanded to include, among others, Medication Therapy Management, this is in line with other similar studies done.<sup>[12,13]</sup> Pharmacists included in this study were grouped based on their basic qualifications, with more than half of them having at least a Bachelor of pharmacy degree, similar to a study done in Malaysia where over 80% of the respondents were BPharm degree holders,<sup>[13]</sup> but unlike a another study done in the U.S where there were equal number of BPharm holders and Pharm.D holders.<sup>[14]</sup> The essence of

their academic qualification is to ascertain their eligibility to provide MTM. The findings in this study indicates that almost all pharmacists were aware about MTM, and also a very large fraction of the respondents agree they were qualified to provide MTM to patients based on their training as pharmacists, this was corroborated by another study by Shilbayeh S.<sup>[15]</sup> revealed satisfactory awareness of community pharmacists about their role in in providing MTM: however, further programs to update their knowledge were mandatory.

Majority of the respondents had a positive attitude and disposition to providing MTM

services, similar to that seen in a study done in Malaysia.<sup>[13]</sup> This study also brought to the fore the assertion that more than half of the pharmacists struggle with creating time for providing MTM services to patients and so may feel burdened by this extra service which was in consonance with other studies that showed that this feeling of being overwhelmed is a challenge and known to reduce health care service by health professionals.<sup>[16,17,13]</sup> Also, this study showed that service charge for providing MTM was not evident, similar to findings in a study done among community pharmacists across U.S where reimbursement for MTM service provided is a challenge.<sup>[14,18]</sup>

As seen from the results, majority of the respondents strongly agreed that they were knowledgeable about MTM and qualified enough to provide the service, similar to a study that recorded over 50% of pharmacists who agreed that they were qualified to provide MTM and pharmacists-provided MTM services improves treatment outcomes in patients.<sup>[19,13]</sup> Also, the findings in this study agreed with that of , Westberg *et al*,<sup>[20]</sup> where they cited in their book how qualified pharmacists were to provide MTM services.

In terms of job satisfaction in providing MTM, an overwhelming proportion of the pharmacists in this study agreed that they found it

professionally rewarding to provide MTM services, this is similar to findings from a survey done in the U.S where pharmacists derive job satisfaction from providing MTM services.<sup>[21]</sup>

This study also suggests that provision of MTM is not a function of qualification since the program has been introduced at the undergraduate curriculum (B.Pharm or PharmD) and years of practice with post-basic qualification is a determinant in provision of MTM; this is in line with the findings from a similar study done in Enugu, Nigeria.<sup>[22]</sup>

## CONCLUSION

From the study, it was observed that majority of community pharmacists in Delta State, have heard about MTM and have a positive attitude towards providing the service. Almost all pharmacists agreed they were qualified to providing MTM services to patients. MTM services will enhance pharmacist-patient relationship as many of the respondents agreed that it is a good way of building a relationship with patients. Pharmacists qualification and years in practice had a strong association with provision of MTM, and therefore are factors that influence the practice of MTM.

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