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RESEARCH ARTICLE

Physician attitudes toward pharmacist provision of medication therapy management services

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Abstract *Objective* The implementation of Medicare Part D in 2006 has the potential to advance the profession of pharmacy through the provision and remuneration of pharmacist-provided medication therapy management (MTM) services. Limited research has evaluated physician attitudes toward pharmacist-provided MTM services, and little is known about factors that may affect these attitudes. The aim of this study was to test a model of physicians' attitudes toward pharmacist-provided MTM services as a part of Medicare Part D. *Setting and Method* A mail survey was sent to a random sample of 500 physicians practicing in West Virginia. Multiple linear regression was used to test the model. *Main outcome measure* The independent variables included prescription volume, specialty type, years of practice, gender, academic affiliation, practice size, physicians' attitudes toward collaborative agreement, and physician–pharmacist communication frequency. Additionally, physician age was included as a control variable. *Results* A total of 102 responses were received yielding a response rate of 22.1%. The mean for physicians' attitude to support provision of MTM by pharmacists was 2.84 out of 5. The overall physicians' attitudes model for provision of MTM by pharmacists was found to be significant. Physicians' attitudes toward collaborative agreement, specialty, years of practice, physician–pharmacist communication frequency regarding patients communication, and gender had significant influences on physician attitudes toward provision of MTM by pharmacists. *Conclusion* The proposed model can provide insight into physicians' attitudes toward provision of MTM by pharmacists and may be helpful in developing future approaches and policies to further improve this collaborative relationship.

Keywords Medicare Part D · Medication therapy management (MTM) services · Physician–pharmacist collaborative agreement · Physician pharmacist communication · Physicians' attitudes toward pharmacists

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Impact of findings on practice

- In order successfully implement select aspects of MTM, pharmacists must gain insight into physician attitudes of pharmacist provision of MTM.
- Pharmacists should target physicians with identified factors such as years in practice and specialty for the introduction of MTM services and reinforcement of existing collaborative practice agreements.
- Pharmacy organizations should increase educational initiatives reinforcing the utility of the pharmacist as drug therapy expert for physicians with factors negatively associated with MTM since the characteristic common to those physician groups is a lack of familiarity with the pharmacist's role in contemporary practice.

- Pharmacists with a high frequency of contact with physicians may need to explore ways to increase the quality of those communications.

Introduction

In the United States the Centers for Medicare and Medicaid Services (CMS) is responsible for oversight of Medicare, which provides health insurance for enrollees over 65, and Medicaid, which covers those with low income. The recent implementation of the Medicare Prescription Drug, Improvement, and Modernization Act created the first opportunity for beneficiaries overseen by CMS to also receive prescription drug coverage [1]. Since both aspects of CMS each provides some form of healthcare coverage for over 40 million enrollees, this Act had far-reaching consequences for patients and pharmacists. Among them, the newly created 'Medicare Part D' program allowed at-risk patients (i.e. those who take multiple medications for multiple conditions) to receive the benefits of advanced pharmaceutical care through medication therapy management (MTM). This allowance for MTM has produced a tremendous opportunity for pharmacists to directly improve patient care, lower total health care costs, and services [1]. MTM allows pharmacists and other health care providers to offer and be reimbursed for MTM services to patients who are covered under the Medicare Part D drug benefit [1]. In order to take advantage of MTM services, patients must have multiple chronic diseases, be taking multiple medications covered under Part D, and must be likely to incur annual costs of at least $4,000 for all Part D covered drugs [2]. MTM services may include the following: (1) selecting, initiating, modifying or administering medication therapy, (2) monitoring and evaluating patients' responses to therapy, (3) patient/family medication consulting, and (4) disease and wellness prevention programs [3].

Several studies have previously reported on physicians' attitudes toward pharmacists' expanded role activities and services [4–6]. However, this study specifically assesses physicians' attitudes toward pharmacist-provided MTM services within the context of their Medicare Part D benefit. To date, very little is known about factors that may affect these attitudes. Investigating the attitudes of physicians is especially relevant because optimal success of several MTM activities could be contingent upon physicians' attitude and acceptance. The results of this study can make a significant contribution by providing a conceptual framework explaining variations in physicians' attitudes toward provision of MTM by pharmacists. The purpose of this study was to test a modified model to help explain physicians' attitudes toward MTM and to obtain a better understanding of physician perceptions and attitudes toward provision of MTM by pharmacists.

Aims of the study

The objectives of this exploratory study were to build a model that can explain the attitudes of physicians toward pharmacist-provided MTM services as a component of Medicare Part D benefit and to identify factors that affect these attitudes.

Methods

Theoretical model

The authors first developed a conceptual framework to explain physicians' attitudes toward provision of MTM services by pharmacists. The elements of the model were derived from existing research in the field [1, 4, 7–10]. In the model, the four categories of variables include: (1) physicians' attitudes toward collaborative agreement with pharmacists, (2) physician–pharmacist communication frequency, (3) practice characteristics, and (4) physician characteristics. Figure 1 presents the proposed theoretical model based on the supporting research literature base.

The only control variable included in the model was physician age. Since age and number of practice years are proportional, age was not included as a model variable. Number of years practicing is more relevant than age because it provides a more precise indication of the length of exposure physicians have with clinical pharmacists. Based on the foregoing assumptions, the research hypotheses related to independent variables were developed and used to guide this survey research.

Survey administration

This study evaluated physician attitudes toward pharmacists' provision of MTM through a mail survey of a random sample of 500 physicians practicing in West Virginia. The sample was selected from the database of licensed physicians in West Virginia maintained by the West Virginia Medical Association. This database lists 2,367 physicians who are practicing in West Virginia. Physicians in this list consist of all specialties (excluding resident physicians). Each subject was contacted up to two times via a survey and a follow-up reminder post card. A cover letter and a stamped return envelope accompanied the surveys. As a token of appreciation for completing the survey, physicians' names were entered into drawing to win one $50 gift certificate.

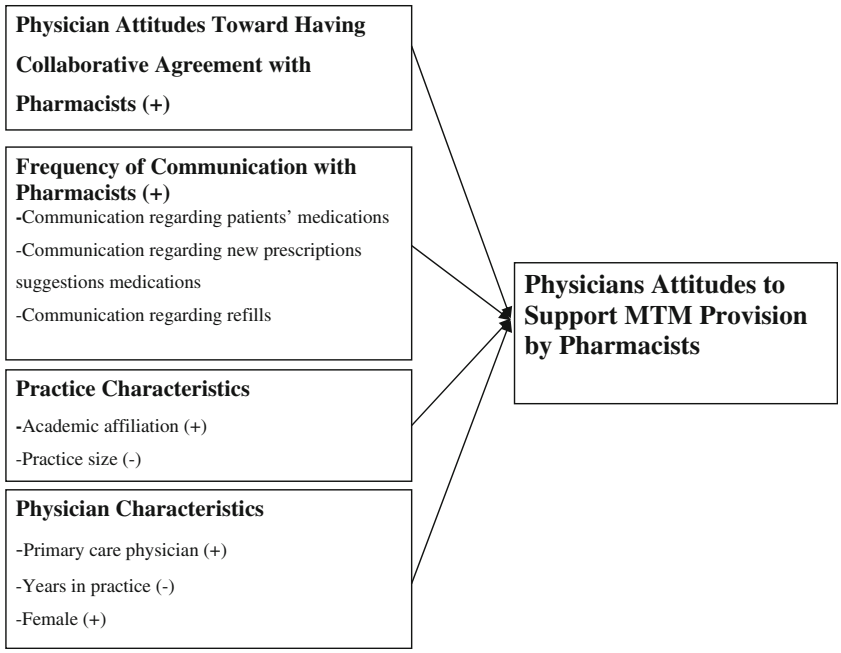

Fig. 1 Influences on physician attitudes to support MTM provision by pharmacists

The pre-testing of the survey was conducted by administering the survey to a convenience sample of five physicians whose names were excluded from the sampling frame for the main study. The physicians' answers during the pilot study were used to evaluate the measures and data collection.

Survey construction

The survey operationalized each variable in the model. Descriptions of each variable, the scale that was used, and the measures included in the survey follow. The survey was prefaced by a brief introduction about MTM and collaborative practice concepts so that recipients had a clear understanding of the research topic. The first section of the survey was about physicians' frequency of communication with pharmacists in the last three months regarding: patients' medication, new prescription suggestions and for refill. A 5-point scale was used to measure the frequency: "never or rarely", "1–3 times", "4–6 times/day", "7–9 times/day", "10 or more times/day". These items were adopted from Ranelli and Biss [11]. The second section included three items: the first one was about physicians' attitudes toward collaborative agreement while the second and the third items were about physicians' attitudes toward pharmacist versus nurse provision of MTM services. A 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) was used for the three items. The last section of the survey is about practice characteristics and demographics. It includes questions about: prescription volume, specialty type, years of practice, gender, age, academic affiliation, and practice size.

Statistical tests

Multiple linear regression analysis was used to test the proposed model. The independent variables were the influences on physicians' attitudes in the proposed model and were entered simultaneously. *T*-test of the beta coefficient was used to test each of the hypotheses at a *P*-value of 0.05. SPSS 15 was used as the software for the analysis.

The empirical model for the regression was as follows: Physician attitudes toward pharmacists providing MTM services as Medicare Part D = $\beta_0 + \beta_1$ Attitudes toward collaborative agreement with pharmacists + β_2 frequency of contact regarding patients medications + β_3 frequency of contact regarding new Rx suggestions + β_4 frequency of contact regarding refills + β_5 academic affiliation + β_6 years in practice + β_7 specialty + β_8 practice setting size + β_9 gender + β_{10} volume of prescription.

Results

Of the 500 mailed surveys, 38 were returned as undeliverable. Thus the adjusted sample size was 462. A total of 102 responses were received giving a response rate of 22.1%. Hence 102 responses were included in the analyses. The frequencies of the physician characteristic measure items are presented in Table 1. Of the 102 usable responses received, 76 respondents (74.5%) were males. The mean age for the respondents was 52.1 years. A total of 47 of the respondents (46.1%) were primary care physicians.

As shown in Table 2, more than half of the respondents (51.5%) reported that they never or rarely had personal

Table 1 Characteristics of survey respondents ($N = 102$)

Characteristics	All respondents (%)
Gender	
Male	76 (74.5)
Female	26 (25.5)
Age	52.09 (12.1)[a]
Number of prescriptions per week	
1–20	24 (24.0)
21–50	23 (23.0)
51–100	27 (27.0)
>100	26 (26.0)
Primary specialty	
Primary care physician	47 (46.1)
Specialists	55 (53.9)
Year of practice	
5 or less	11 (10.8)
6–10	19 (18.6)
11–15	13 (12.7)
15–20	11 (10.8)
>20	48 (47.1)
Academic affiliation	
Yes	63 (62.4)
No	38 (37.6)
Practice size	
Solo practice	34 (33.3)
Small practice (2–10)	39 (38.2)
Large practice (11+)	29 (28.4)

Total N varies due to item non-response

[a] Mean (standard deviation)

contact with a pharmacist regarding a patient's medication, while 32.7% had this type of contact with a pharmacist one to three times daily. Only 11% of the respondents had a pharmacist contact them with a suggestion regarding a new prescription, and they reported this happening one to three times daily. Pharmacists had contact with the physicians' offices regarding prescription refills, with around two thirds (66.0%) reporting one or more contacts per day; another third (34.0%) never or rarely had pharmacists call the office for refill authorization. Communication between pharmacists and physicians is therefore occurring, but it most frequently consists of simple refill requests.

The descriptive statistics for physicians' attitudes toward collaborative agreement with pharmacists and toward MTM service provision by pharmacists or nurses are presented in Table 3. The support level for collaborative agreements with pharmacists was greater (3.44) than MTM provision (2.86). Data analysis revealed that 60% of the respondents agreed or strongly agreed on supporting collaborative agreement while only 36% supported the MTM provision by pharmacists. Pharmacists were preferred over nurses for the MTM provision, 2.84 vs. 2.55, respectively.

As depicted in Table 4, the multiple linear regression model showed R^2 value of 0.522, $P < 0.001$. The significant influences on physicians' attitudes towards the MTM service provision by pharmacists were physicians' attitudes toward collaborative agreement, specialty, years of practice, physician–pharmacist communication frequency regarding patients communication, and gender.

Table 2 Frequency of communication between pharmacists and physicians (%)

Physician reported frequency	Physician–pharmacist contact regarding patient's medications	Pharmacist contact with physician regarding new prescription suggestions	Pharmacists contact with office for refill
Never or rarely	52 (51.5)	85 (85.0)	34 (34.0)
1–3 times/day	33 (32.7)	11 (11.0)	28 (28.0)
4–6 times/day	11 (10.9)	2 (2.0)	15 (15.0)
7–9 times/day	4 (4.0)	2 (2.0)	3 (3)
≥10 times/day	1 (1.0)	0	20 (20.0)

Table 3 Physician attitudes toward collaborative agreement and pharmacist versus nurse provision of medication therapy management services (%)

Survey item[a]	SD	D	N	A	SA	Mean[b]
Support collaborative agreement with pharmacists	12 (12.2)	11 (11.2)	16 (16.3)	40 (40.8)	19 (19.4)	3.44 ± 1.27
Pharmacist should provide MTM in West Virginia	19 (20.0)	19 (20.0)	23 (24.2)	24 (25.3)	10 (10.5)	2.86 ± 1.29
Nurse should provide MTM in West Virginia	23 (24.2)	26 (27.4)	23 (24.2)	16 (16.8)	7 (7.4)	2.56 ± 1.22

SD strongly disagree, *D* disagree, *N* neutral, *A* agree, *SA* strongly agree

[a] All the items were measured by Likert scale 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

[b] ± Standard deviation

Table 4 Coefficients for physician attitudes toward pharmacist using linear multiple regression

Construct	Coefficient beta	*P*-value
Model variables		
Physician attitudes toward collaborative agreement with pharmacists[a]	0.522	<0.001**
Specialist[b]	−0.192	0.046*
Years of practice	−0.300	0.038*
Presence of academic affiliation	−0.148	0.102
Contact regarding pts medications[c]	−0.332	0.003**
Contact regarding new RX suggestions[c]	0.074	0.456
Contact with office for refills[c]	0.081	0.438
Prescription volume	−0.106	0.250
Female	0.236	0.014*
Practice setting size	−0.035	0.696
Control variable		
Age	−0.367	0.01**

[a] These were measured by Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree

[b] Family practice, internal medicine, general pediatrics and OB/gynecology coded as primary care physicians, and all the other specialties coded as specialists

[c] These were measured as: 1 = Never or rarely, 2 = 1–3 times/day, 3 = 4–6 times/day, 4 = 7–9 times/day, 5 = ≥10 times/day

* Significant at $P \leq 0.05$, ** significant at $P \leq 0.01$, $n = 95$, $R^2 = 0.552$. The F value for the overall model is ($F = 7.66$, $P < 0.001$)

Discussion

The overall regression model incorporating the independent variables was found to be significant. The results suggest that our model can explain variation in physician attitudes toward MTM provision by pharmacists. This is the first study that has used a structured theoretical model to explain physicians' attitudes toward MTM provision by pharmacists (Table 5).

Physicians' attitudes toward collaborative practice with pharmacists were found to have a significantly positive influence on physicians' attitudes to support the MTM provision by pharmacists. Stated differently, physician support for MTM is highly correlated to their support for collaborative practice with pharmacists. This suggests that physicians who value capitalizing on the pharmacists' drug therapy expertise through collaborative practice agreements are more likely to support pharmacists providing higher-level MTM.

The frequency of physician–pharmacist communication regarding patients' medications in the regression was surprisingly found to have a significantly negative influence on physicians' attitudes to support the MTM service provision by pharmacists. This is contrary to our literature review, which suggested that physicians who had worked more closely and/or more often with pharmacists were more likely to support an expanded role for the pharmacist [12, 13]. The investigators had hypothesized that physicians who communicated more frequently with pharmacists would be more aware of their potential contributions and value to patient care. A possible explanation for this negative finding is that communication between pharmacists and physicians is often not professionally constructive. Since communication regarding refills was the most frequent type of contact reported, it may be inferred that this is perceived negatively by physicians as refill authorization is a technical function. The investigators also consider that refill-related contact is frequently indirect, mediated by nurses, technicians or technology. These results show that pharmacist contact with the West Virginia physicians surveyed is associated with less support of MTM services, perhaps because they perceive pharmacists as mostly focused on technical and not substantive aspects of drug therapy.

Table 5 Summary of hypotheses testing

Hypothesis	Regression result
H1 (attitudes toward collaboration)	Supported
H2 (contact-patients medications)	Supported (on the opposite side)
H3 (contact-new Rx suggestion)	Not supported
H4 (contact-office for refill)	Not supported
H5 (presence of academic affiliation)	Not supported
H6 (prescription volume)	Not supported
H7 (practice setting size)	Not supported
H8 (years in practice)	Supported
H9 (gender)	Supported
H10 (primary care physician)	Supported

Although this was unexpected there are three plausible explanations for this result. The first explanation is that there is some evidence in the literature to support the contention that community pharmacists who converse with physicians on a trivial level may reinforce community pharmacy's image as that of a marginal profession revolving around dispensing a product [14]. Another plausible explanation is that physicians who communicate with clinical pharmacists may compare the communication they have with them to the communication they have with community pharmacists. To the extent the clinical pharmacist communication is seen as superior to that of the community pharmacist communication may reinforce the stereotype of the community pharmacist as less competent [8]. Finally, previous research demonstrates that pharmacists may not feel confident talking with physicians, or may

not have confidence in their ability to persuade physicians to accept their recommendations [15]. Often, if one does not feel confident, he/she may not perform well in communication with another.

The years of practice factor was inversely related to acceptance of pharmacists providing MTM services. This finding was consistent with the literature [5, 10]. In other words, the longer a physician has been in practice, the less likely he would have been exposed to clinical pharmacists in the practice environments of medical school and residency. Without this observation of active pharmaceutical care, they are likely to have a restrictive image of pharmacist in the dispensing role.

Primary care physicians (PCPs) are more likely to support MTM provision by pharmacists as compared to specialists. Consistently, literature shows that primary care physicians are more supportive of expanded pharmacist roles [5, 16]. One possible reason could be that primary care physicians rely on the use of drugs as their main treatment modality and prescribe a broader array of medications in comparison to specialists. Therefore, PCPs may be more receptive to getting drug information through a source such as the pharmacist more willingly [16].

Gender was found to be a significant factor, suggesting that female physicians are more likely to be accepting of expanded pharmacist roles. One plausible reason is that women are more comfortable with the person to person contact and interprofessional interaction demanded of a clinical role [8]. Another reason could be that pharmacists may pose less of a perceived threat to female physicians is because autonomy and authority may be more important to males [8].

The results of this study have uncovered several areas where additional research could be valuable. While the findings of this study apply only to staff physicians, the generalizability of these outcomes to resident physicians remains to be determined. Equally important, subsequent research is needed to investigate physicians' attitudes toward MTM provision by pharmacists in a national sample of physicians to address external validity of the findings.

This study has three limitations. First, when reviewing the results of this study, one should review with caution before assuming that this model can be generalized to all physicians. We surveyed only physicians who are practicing in a limited region (i.e., West Virginia). It is possible that physicians who are practicing in West Virginia are different than physicians who are practicing in other states. Second, as it was a self-administered mail survey, there is the potential for non-response bias. Personalized mailings, financial incentives, repeated contacts and mailings with enclosed stamped envelopes were used to try to limit non-response bias. The relatively low response rate of around 22% is a limitation of the study. Moreover, response to this study was voluntary. Therefore, it is prone to self-selection biases; only physicians who were interested in MTM likely filled in the questionnaire.

Third, in survey research, results may be biased by social desirability effect. This means that respondents may be tempted to give a socially desirable response rather than what they think or believe. Hence, some physicians could state that they support provision of MTM by pharmacists even if they did not actually, and vice versa. Assurance of confidentiality may have helped to reduce social desirability bias. Despite these limitations, we believe that these results provide useful insight into physicians' attitudes of pharmacist provision of MTM.

Conclusion

Gaining insight into physician attitudes toward pharmacist provision of MTM is important due to the necessity of collaborative practice for some MTM initiatives as pharmacists attempt to advance the norms of clinical practice in the community setting. Physician factors such as years in practice and specialty were positively associated with attitudes toward pharmacist-provided MTM, whereas factors like frequency of communication were negatively associated, despite this being a counter-intuitive finding. Pharmacists with a high frequency of contact with physicians may need to explore ways to increase the quality of those communications. Elements identified in this study that are positively associated with physician attitudes can be reinforced and factors negatively associated can be targeted in efforts for improvement to increase the overall quality of relationships and success of MTM implementation by pharmacists.

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Conflicts of interest None.

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