

The Willingness of Community Pharmacists in Collaborative Care of Frail Elderly in Nursing Homes

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ABSTRAK

Peningkatan bilangan penghuni di rumah penjagaan telah menjadi salah satu kebimbangan utama disebabkan peningkatan permintaan ubat dan seterusnya isu-isu berkaitan ubat, terutama di kalangan orang tua yang lemah. Ahli farmasi komuniti adalah profesional penjagaan kesihatan terdekat yang boleh menyumbang kepada populasi ini untuk membolehkan penggunaan sepenuhnya ubat yang ditetapkan dan untuk mengelakkan masalah yang berkaitan dengan ubat. Kajian ini bertujuan untuk menyiasat kesedaran tentang ahli farmasi komuniti mengenai isu-isu mengenai warga tua yang lemah dan untuk menentukan kesediaan mereka dalam penjagaan kolaborasi warga tua yang lemah di rumah penjagaan dan perkhidmatan yang mereka tawarkan. Satu kajian berasaskan soal selidik ini dilakukan di kalangan ahli farmasi komuniti di Semenanjung Malaysia bermula dari Jun 2018 hingga Disember 2018. Majoriti responden bersetuju dengan hakikat penuaan adalah punca utama kelemahan ($n = 98, 88.3\%$) dan penyakit kronik juga menyebabkan kelemahan ($n = 96, 86.5\%$). Kebanyakan ahli farmasi komuniti juga berminat untuk mengambil bahagian dalam penjagaan kolaboratif warga tua yang lemah dan sanggup menyediakan perkhidmatan farmasi mereka kepada warga tua yang lemah. Terdapat kaitan positif antara kesedaran ahli farmasi komuniti mengenai isu-isu mengenai warga tua yang lemah dan kesanggupan mereka dalam penjagaan kolaborasi warga tua yang lemah di rumah penjagaan ($r=0.374, n=111, p=0.01$). Kebanyakan ahli farmasi menyedari isu-isu mengenai warga tua yang lemah dan bersedia untuk mengambil bahagian dalam penjagaan kolaborasi warga tua yang lemah di rumah penjagaan.

Kata kunci: kesihatan, polifarmasi, rumah jagaan, ubatan, warga emas

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ABSTRACT

An increase in the number of residents in nursing homes has become a significant concern due to the rise in medication demand and subsequently medication-related issues, especially in frail elderly. Community pharmacists are the closest healthcare professionals available that can contribute to this population to allow optimal utilization of the prescribed drugs and to prevent drug-related problems. The present study aimed to investigate the awareness of community pharmacists on issues regarding frail elderly and to determine their willingness in collaborative care of frail elderly in nursing homes and the services they are willing to offer. This was a cross-sectional study utilising a set of questionnaire that was delivered to practicing community pharmacists in Peninsular Malaysia from June 2018 until December 2018. Majority of the participants agreed to the fact that aging is the primary cause of frailty (n=98, 88.3%), and that chronic disease is also a cause of frailty (n=96, 86.5%). Most of the community pharmacists were also keen to participate in the collaborative care of frail elderly, and were willing to provide their pharmacy service to the frail elderly. There was a positive correlation between the awareness of community pharmacists on issues regarding frail elderly and their willingness on collaborative care of frail elderly in nursing homes ($r=0.374$, $n=111$, $p=0.01$). Majority of the pharmacists were aware of the issues regarding the frail elderly, and were willing to participate in the collaborative care of frail elderly in nursing home.

Keywords: elderly, medicine, medical health, nursing home, polypharmacy

INTRODUCTION

It is known that aging is associated with an increasing prevalence of multiple chronic conditions. Age-related changes in pharmacokinetics and pharmacodynamics, high risk of co-morbidity and polypharmacy necessitate increasing attention in the treatment of elderly patients (Corsonello et al. 2010). Polypharmacy increases the risk of adverse drug events (ADEs), leading to higher rate of morbidity and hospital admissions, lower adherence and increased institutionalization in this population.

In elderly, problem with the medication management also leads to the need of emergency medical treatment (Milos et al. 2014). As a result, the most uncertain outcome of this situation is the clinical presentation of frailty as one of the geriatric giant.

It is estimated that more than half of elderly to be frail with subsequent increased risk of falls, disability and need for long-term care (Clegg et al. 2013). The role of pharmacist is now expanded to reach the community especially in the nursing home and home care patient, as they are equipped with the skill of medication

review (Ong et al. 2016). Pharmacist-directed home medication review would be able to reduce the improper use of medication and related health care cost (Papastergiou et al. 2013). Community pharmacists are also one of the approachable front line health care professionals and well positioned to affect the care of home-bound patients. Pharmacists-directed home medication review allows an effective mechanism to tackle the issues regarding drug treatments of those members of the community need pharmacy services the most but lack of accessibility. However, most studies focused on the role of general practitioner and nurses in ambulatory community service, and the pharmacist-led medication review are also mainly involved the clinical pharmacist from the hospital. There are limited studies on the involvement of community pharmacists in collaborative care of frail elderly in nursing homes. Therefore, the present study was aimed to determine the community pharmacists' willingness in collaborative care of frail elderly in nursing homes and potential areas in which community pharmacists can offer their services.

MATERIALS AND METHODS

A cross-sectional study was conducted from June 2018 until December 2018 among community pharmacists practicing in Malaysia (Ethics approval UKM PPI/111/8/JEP-2017-384). A set of 34-item questionnaire was developed through a literature review, comprising four sections. The first section consisted

of eleven items (demographics and pharmacy-related information) and section two was developed to assess the awareness of community pharmacists on issues related to frail elderly (eleven items). A five-point Likert scale was used to determine the level of pharmacist awareness and the score was calculated by summing the respondent's number of correct answers to all statements. In this study, the original Bloom's cut-off points (80.0-100.0%, 60.0-79.0%, and 59.0%) were adapted and modified from another study (Ngadimon et al. 2015).

Section three of the questionnaire was aimed to measure the willingness of community pharmacists in collaborative care of frail elderly in nursing homes (ten items) using a five-point Likert scale. The willingness score was also calculated as a continuous variable by summing the respondents' number of positive responses to ten statements. One point was given for each positive response, whereas zero points were given for each negative or uncertain response. Total willingness scores ranged from zero to ten, with a higher overall score indicating a higher level of willingness in collaborative care of frail elderly in nursing homes. In this study, the score of the awareness and willingness was categorized into several categories to indicate the level of awareness and willingness of community pharmacists in the collaborative care of frail elderly. The level of awareness was categorized in four, which was very high (score 9-11), high (score 6-8), moderate (score 3-5) and low (score 0-2). The same was for

the level of willingness, in which it was categorized into four levels which was very high (score 9-10), high (score 6-8), moderate (score 3-5) and low (score 0-2).

The fourth section of this questionnaire identified the potential services that can be offered by community pharmacists to frail elderly in nursing homes. For this part, a list of services was obtained from the World Health Organization website, and the respondent needed to choose one service that is the most preferred and one that is least preferred, for the frail elderly in nursing homes.

A pilot study was conducted among 20 community pharmacists to assess the reliability of the tool. The paper-based survey was distributed, and the Cronbach's alpha was calculated for section 2 and 3 of the questionnaires. The obtained Cronbach's alpha for each part were 0.778 and 0.760, respectively. The lists of community pharmacists practicing in Malaysia and community pharmacies currently operating in Malaysia were obtained from the Pharmaceutical Services Division, Ministry of Health (MOH) Malaysia. The other sources of sampling were through online media and phone contacts. There are about 3000 community pharmacists currently practicing in Malaysia, and according to the list obtained from the MOH website, about 700 community pharmacies are presently operating in this country. Community pharmacists practicing in Malaysia that fit the inclusion criteria were invited to participate in this study using convenient sampling. The inclusion

criterion for this study included the community pharmacists currently practicing in Malaysia with the experience of practicing in community setting for one year and above. By using contact information obtained through government websites, the online survey was generated using Google Form and was distributed to community pharmacies in each and every state except Perlis, Kedah and Kuala Lumpur Federal Territory in which for this regions paper-based survey was conducted.

Data Analysis

All data analyses were performed using IBM Statistical Package for Social Sciences (SPSS) Statistics for Windows, Version 21.0 (Armonk, NY: IBM Corp.). Demographic characteristics and potential services by community pharmacists to frail elderly in nursing homes were summarised using descriptive statistics. The Kolmogorov-Smirnov test was used to determine the normality of awareness and willingness scores. Pearson Correlation was used to assess the association between awareness and willingness scores. In all statistical analyses, a p-value of less than 0.05, was considered to be statistically significant.

RESULTS

Of the 540 pharmacists who were requested to answer the questionnaire by both e-mail and paper-based survey, 111 (20.6%) completed the survey. The mean age of the community pharmacists was 35.63 with the

Table 1: Participants' demographics information (N = 111)

Characteristics		n, %	Mean (SD)
Age (years)	24-33	50 (45)	35.63(8.374)
	34-43	39 (35.1)	
	44-53	17 (15.3)	
	54-63	4 (3.6)	
	More than 64	1 (0.9)	
Gender	Male	39 (35.1)	
	Female	72 (64.9)	
Race	Malay	58 (52.3)	
	Chinese	37 (33.3)	
	Indian	15 (13.5)	
	Other	1 (0.9)	
Graduated from	Local university	87 (78.4)	
	Overseas university	24 (21.6)	
Highest Degree earned	Bachelor of Pharmacy	92 (82.9)	
	Master's Degree	19 (17.1)	
Years in practice	1-5	36 (32.4)	
	6-10	35 (31.5)	
	11-15	27 (24.3)	
	16-20	6 (5.4)	
	More than 20	7 (6.4)	
Practice setting	Independent Community Pharmacy	49 (44.1)	
	Chain Community Pharmacy	59 (53.2)	
	University-affiliated pharmacy	3 (2.7)	
State of Practice	Perlis	10 (9)	
	Kedah	17(15.3)	
	Pulau Pinang	6 (5.4)	
	Perak	9 (8.1)	
	Selangor	12 (10.8)	
	Negeri Sembilan	4 (3.6)	
	Melaka	7 (6.3)	
	Kuala Lumpur	25 (22.5)	
	Pahang	5 (4.5)	
	Kelantan	3 (2.7)	
	Terengganu	3 (2.7)	
	Johor	8 (7.2)	
Labuan	2 (1.8)		

Characteristics		n, %	Mean (SD)
Number of elderly patients received per week	None	1(0.9)	
	1-9	8(7.2)	
	10-19	10(9)	
	20-29	27(24.3)	
	30-39	29(26.1)	
	40 and above	36 (32.4)	
Numbers of prescription received from elderly per week	None	60(54.1)	
	1-5	41(36.9)	
	6-10	2(1.8)	
	More than 10	8(7.2)	
Special services available in the pharmacy for elderly patient	Yes	50(45)	
	No	61(55)	

standard deviation of 8.374. The majority of the participants involved in this study were Malays (n=58, 35.1%) followed by Chinese (n=37, 33.3%), Indians (n=15, 13.5%) and others (n=1, 0.9%). As Table 1 showed, most of the respondents had practiced in a community setting for ten years or less (n=71, 63.9%), and the majority were practicing in chain community pharmacies (n=59, 53.2%). Majority of the pharmacies reported receiving 30-39 elderly patients per week (n=29, 26.1%). However, most reported that they did not receive any prescriptions from elderly patients (n=60, 54.1%). Therefore, most of the respondents did not provide any special services to elderly patients (n=61, 55%).

Table 2 showed the awareness of community pharmacists on issues faced by frail elderly patients. Most of the community pharmacists agreed to the fact that aging is the primary cause of frailty (n=98, 88.3%), and that chronic disease is also a cause of frailty (n=96, 86.5%). They also

tend to agree that frailty is a barrier to health care treatment (n=75, 67.6%), and subsequently cause a significant impact on elderly patients, family, and society. The majority of respondents also agreed that frailty might substantially increase the risk of fall, disability, long-term care, and even death (n=99, 89.2%). In this study, most of the respondents agreed that the limitations of the frail elderly may result in treatment failure and adverse events (n=94, 84.7%). They also noted that non-adherence to medication is very high among the frail elderly population.

Furthermore, most of the community pharmacists agreed that unawareness of the caretaker of the elderly patient might result in inappropriate medication management (n=84, 75.7%). The medication demand among frail elderly was recognized to be very high, however treatment outcomes were perceived to be inferior. Additionally, most viewed social and economic factors as a possible limit

Table 2: Awareness of community pharmacists on issues faced by frail elderly patients

No	Statement	Response (n,%)				
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Aging is the major cause of frailty.	36 (32.4)	62(55.9)	10(9)	3(2.7)	0(0)
2	Chronic diseases are a cause of frailty among elderly.	40(36)	56(50.5)	12(10.8)	2(1.8)	1(0.9)
3	Frailty is a barrier in providing health care treatment to the elderly patients.	17(15.3)	58(52.3)	26(23.4)	10(9)	0
4	Frailty causes a huge impact to the patients, family and society.	35(31.5)	56(50.5)	12(10.8)	6(5.4)	2(1.8)
5	Frailty may substantially increase the risk of fall, disability, long-term care and death.	36(32.4)	63(56.8)	7(6.3)	4(3.6)	1(0.9)
6	The disabilities of the frail elderly may result in treatment failure and adverse events.	30(27)	64(57.7)	13(11.7)	4(3.6)	0
7	Non-adherence to medications is very high among frail elderly population	19(17.1)	58(52.3)	16(14.4)	11(9.9)	7(6.3)
8	The unawareness of the care taker of elderly patient may result in inappropriate medication management at home.	21(18.9)	63(56.8)	16(14.4)	8(7.2)	3(2.7)
9	Medication demand among frail elderly is very high but the treatment outcomes are very poor.	21(18.9)	62(55.9)	19(17.1)	7(6.3)	2(1.8)
10	Social and economic factors put a limit for frail elderly patients to get their medication	25(22.5)	56(50.5)	19(17.1)	8(7.2)	3(2.7)
11	Today's facility is not enough to bring the frail elderly patients closer to the health care services.	23(20.7)	54(48.6)	12(10.8)	12(10.8)	10(9)

for frail elderly patients to get their medication, and that current facilities are not adequate to bring frail elderly patients close to health care services.

Table 3 showed the community pharmacists' willingness on collaborative care of frail elderly in nursing homes. Generally, most of the community pharmacists were willing to participate in the collaborative care of frail elderly (n=86, 77.5%) and 75.7% (n=84) of the respondents were willing to provide their services to the frail elderly in nursing homes. Most of the community pharmacists indicated that more lives could be saved if they offered their pharmacy services to

the frail elderly (n=88, 79.3%), and admitted to the importance of the role of the pharmacist in assessing the awareness of the caretaker to prevent medication errors among frail elderly patients. Besides, 88.3% (n=98) of the respondents also agreed that medication reconciliation services to the frail elderly are needed to ensure that the patients take the correct drugs, and that more lives can be saved if the community pharmacists participate in the collaborative care of frail elderly in nursing home. It is worth to note that most of the respondents in this study also deemed that they have to ensure that frail elderly patients get

Table 3: Community pharmacists' willingness on collaborative care of frail elderly in nursing homes

No	Statement	Response (n,%)				
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Generally I am willing to participate in the collaborative care of frail elderly.	30(27)	56(50.5)	22(19.8)	3(2.7)	0(0)
2	I am willing to provide my services to the frail elderly in nursing home.	27(24.3)	57(51.4)	20(18)	20(18)	3(2.7)
3	By providing pharmacy services to the frail elderly in nursing home, more life can be saved.	31(27.9)	57(51.4)	31(27.9)	3(2.7)	0(0)
4	Assessing the awareness of the care taker is very important to prevent medication errors.	25(22.5)	71(64)	13(11.7)	2(1.8)	0
5	Medication reconciliation services to the frail elderly are needed to ensure that the patients take the correct drugs.	31(27.9)	67(60.4)	11(9.9)	2(1.8)	0
6	By participating in the collaborative care of frail elderly in nursing home, I can save more life.	27(24.3)	72(64.9)	10(9)	2(1.8)	0
7	It is a duty of a community pharmacist to make sure that the frail elderly patients get enough drug related services.	19(17.1)	65(58.6)	24(21.6)	2(1.8)	1(0.9)
8	The collaborative care of frail elderly in nursing home will improve our health care system.	27(24.3)	67(60.4)	14(12.6)	3(2.7)	0(0)
9	Participation community pharmacists in collaborative care of frail elderly may reduce the burden faced by the hospitals, patients and family members.	34(30.6)	62(55.9)	11(9.9)	3(2.7)	1(0.9)
10	Collaborative care of frail elderly in nursing home will give a positive impact to the career as a pharmacist.	34(30.6)	63(56.8)	12(10.8)	2(1.8)	0(0)

enough drug-related services, and that the collaborative care of frail elderly in the nursing homes will improve Malaysian health care system. The role of community pharmacists in the collaborative care of frail elderly in the nursing home is further highlighted as to reduce the burden faced by the hospitals, patient and family members. Lastly, 87.4% (n=97) of the respondents agreed that collaborative care of frail elderly in nursing homes would give a positive impact to their career as a

pharmacist.

Nonetheless, there was a positive correlation between the awareness of community pharmacists on issues regarding frail elderly and their willingness on collaborative care of frail elderly in the nursing home ($r=0.374$, $n=111$, $p=0.01$). Table 4 indicated the potential services at which community pharmacists can offer to the frail elderly in nursing homes. The most preferred service that the community pharmacists were willing to provide

Table 4: Potential service at which the community pharmacists can offer their services to the frail elderly in nursing homes

No	Statement	Response (n,%)	
		Most preferred	Least preferred
1	Processing of prescriptions	3 (2.7)	34 (30.6)
2	Care of patients or provide clinical pharmacy services	12 (10.8)	11 (9.9)
3	Monitoring of drug utilization	38 (34.2)	7 (6.3)
4	Extemporaneous preparation and small-scale manufacture of medicines	3 (2.7)	32 (28.8)
5	Responding to symptoms of minor ailments	46 (41.4)	3 (2.7)
6	Compile and maintain information on all medicines of the public	2 (1.8)	21 (18.8)
7	Health promotion campaigns	7 (6.3)	2 (2.7)

was responding to the symptom of minor ailments (n=46, 41.4%), followed by monitoring of drug utilization (n=38, 34.2%). Meanwhile, processing of prescriptions (n=34, 30.6%) and extemporaneous preparation and small-scale manufacture of medicines (n=32, 28.8%) were deemed the least preferred services among respondents.

DISCUSSION

Our response rate of this study was sufficient to meet the minimum required representative sample size of Malaysian community pharmacists. The demographic characteristics such as gender, age, highest degree, nature and location of pharmacies, experience in the community setting as well as local or overseas graduation did not have a significant effect on the awareness and willingness of community pharmacists. Most of the participants in the study were pharmacists who were practicing in a community setting for not more than ten years. The high number of elderly patients received per week indicated the abundance of elderly

patients in need of medications. It was also clear that the amount of prescriptions collected from the elderly patient was very low. This meant that community pharmacists in Malaysia do not commonly practice screening of prescriptions, as patients get most of their medications from the general hospitals or other government healthcare facilities. Even in the private sector, the private hospitals and clinics have their own pharmacies and dispensaries to screen the prescriptions. This may be a possible reason why the community pharmacists received a very low number of prescriptions per week. Since most of the community pharmacies did not provide any special services, this was probably due to the lack of studies that emphasise the need of elderly patients to be treated with extra attention from healthcare professionals, and the need for a more detailed investigation on the use of drugs among elderly.

More than half of the respondents agreed that aging and chronic diseases are inter-related to each other, and are significant causes of frailty. According

to a study conducted by Hamidin et al. (2018), aging and chronic diseases vastly increase the risk of frailty among Malaysian community. Aging, multimorbidity, and both physical and psychosocial deterioration ended up to frailty and were negatively associated with quality of life (Renne & Gobbens 2018). The respondents also agreed that frailty is a barrier in providing healthcare treatment to the elderly patient. It is possible that the community pharmacists had experienced the difficulty in dealing with the patients with frailty syndrome.

This study also revealed that most of the pharmacists were aware of the impact of the frailty itself to the patient, since most of the respondents agreed that frailty may substantially increase the risk to be dependent. The positive responses from the pharmacists could be due to the pharmacists being aware that frailty is usually associated with the end of life situation, at which minimal treatment and procedures can be implemented to improve the patients' clinical condition. The same result was also obtained from a retrospective study that was conducted in Malaysia, in which most of the detected non-adherences were among elderly patients. The reasons behind it was low adherence, complicated medications, inability to understand medication instructions and high treatment costs which subsequently result in treatment failure, adverse reactions and increase rehospitalizations (Sam et al. 2015). It can be said that most of the pharmacists agreed that the unawareness of the caretaker may result in medication errors at home. Poor comprehension

to medication instructions in such elderly patients may find it difficult to read, understand or even recall the information provided may also lead to medication errors (Samaranayake et al. 2018).

The management of chronic illness also has changed from a traditional care in the hospital to the community-centered population (Lim et al. 2017). In the Asia-Pacific region, the prevalence of frailty in community-dwelling older adults is approximately up to 27%. Hence, a standardized intervention to improve polypharmacy in geriatrics is warranted (Sharma et al. 2016). Through this study, it is clear to see that the community pharmacists agreed that the medication demand among frail elderly patients is high, but the outcome from the treatment is inferior. It is possible for the pharmacists practicing in the community setting to experience such number of elderly patients coming to their premises to receive drugs and health-related services, even though community pharmacies are not the primary source of drug-related services in this country. This indicates the need for medications among elderly patient is extortionate as they had been prescribed with multiple medications to manage their chronic clinical conditions. The majority of pharmacists surveyed, also agreed that socio-economic factors and insufficient facilities available are barriers for the frail elderly populations to get their medications at the nearby healthcare facilities. This could be due to the pharmacists' belief that the disabilities due to the frailty syndrome cause the elderly patients to be unable

to support their medications and other medical needs.

In the Netherlands, there are active roles of the community pharmacists in medication review among elderly with polypharmacy (Chau et al. 2016). They started to conduct clinical medication review as their daily practice of community pharmacies and as the result, at least two drug related problems were identified per patient. Nearly half of all pharmacist-proposed interventions were implemented as proposed. This active role is still lacking among community pharmacist in Malaysia and it could be hindered by several factors such as market competition, legislative issues, customers' knowledge and expectations, macroeconomic impacts and operational challenges (Kho et al. 2017).

Community pharmacists are trained to contribute to identification and management of chronic medical conditions such as hypertension, diabetes and cardiovascular disease. Our present study revealed that the most preferred service at which the community pharmacists can offer to the frail elderly in nursing homes is responding to symptoms of minor ailments. This could be due to most patients coming to the community pharmacies to purchase medications to treat minor illnesses. It is also possible that patients come to community pharmacies to buy over the counter products and non-formulary medications. Although in this country, most patients get their medications from the general practitioners, there were moves to

encourage collaborative working between general practitioners and the community pharmacists to achieve the best patient outcomes. Nevertheless, it requires support from all stakeholders and changes to delivery of care in primary care settings.

Few limitations were identified in this study. Firstly, this study was conducted as a cross-sectional survey, which was limited to a particular time period. Hence, it could not reflect the changes nor predict the future levels of community pharmacists' willingness in collaborative care of frail elderly in nursing home residences in Malaysia. Secondly, this study might have only included community pharmacists who are more motivated to answer the questionnaires; therefore it may have influenced the research results on willingness to participate in the collaborative care in which the more motivated respondents tend to give more positive responses. Although the current study done represented community pharmacists in Malaysia, future studies may be carried out preferably with larger sample size and include community pharmacists in rural area, and from the states with lowest participation.

CONCLUSION

Majority of community pharmacists in Malaysia were aware of the issues regarding to the frail elderly in nursing homes. The community pharmacists were also willing to participate in the collaborative care of frail elderly. Their overall views reflected on various benefits of collaborative care from

multiple perspectives if participated by community pharmacists. Community pharmacists prefer responding to symptoms of minor illness as a service, as they are willing to contribute to the frail elderly in nursing homes.

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