Assessing Attitudes of Patients towards Chronic Disease Self-management in Singapore

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Abstract

Objective: The aim of this study was to assess the attitudes of patients in Singapore suffering from chronic disorders towards their disease management.

Methods: A cross-sectional study was conducted using a questionnaire administered by 2nd year Pharmacy students. Patients with at least one of these cardiovascular risk conditions (hypertension, diabetes, and/or hypercholesterolemia) in the outpatient hospital pharmacy were interviewed. Data was analysed using non-parametric statistics (Chi-square and Spearman's rho) to assess the association between demographic variables and patient self-management habits.

Results: A total of 211 surveys were collected. More than 50% of patients did not seek further knowledge of their medical condition (52.1%). Most of them could not remember names of the medications (55.5%). This was largely due to a combination of low English literacy (26%) and difficult medication names (25%). Only 18% of patients possessed competent self-management habits. An association was demonstrated between competent self-management habits and income ($p<0.001$), educational attainment ($p<0.001$), and race ($p=0.020$).

Conclusion: Only a minority of patients currently possess competent self-management habits, which may pose a barrier to patient-centred care. Income, educational attainment and race are important predictors of patient propensity towards disease self-management.

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Introduction

As healthcare advances towards greater patient-centred care, there is a need for greater involvement of the patient in the process of medication safety to reduce the probability of medication errors [1]. Patients, pharmacists and physicians have equal responsibility in the safe use of medications and the prevention of medication errors [2].

All three parties are equally essential to reduce the chances of medication error(s) in outpatient settings. Hence, there is a need to empower the patient to participate in this process, so that medication safety can be enhanced and incidents of medication errors reduced. To ensure successful empowerment, there is a need to first assess the attitudes of the patients to evaluate if they are ready to accept greater responsibility. By understanding their patients' knowledge of the seriousness of their chronic medical conditions, healthcare professionals will be able to communicate more effectively to them and establish a better rapport with them and their care takers.

Previous studies showed that patients from hospitals in the Midwest region, USA, are willing to take an active stance towards preventing medication errors [3]. However, no studies to date have been performed to assess the attitudes of patients receiving chronic medications in ambulatory care settings in Singapore. The data in patients with chronic diseases is important as they have higher margin for medication errors. This is due to their multiple medication use and disease progression, which requires them to be more proactive in their disease management.

Hence, this study intends to give a perspective on the attitudes of patients and their chronic disease management in Singapore The impact of this study is wide-ranging as it will allow administrators and clinicians to implement strategies to improve the attitudes of these patients. When patients are armed with better attitudes towards medication safety, aspects pertaining to therapeutic efficacy, medication safety and quality of life of these patients can be vastly improved.

Methods

A total of 211 patients were interviewed while they were waiting to collect their medications at an outpatient pharmacy in a tertiary hospital. After informed consent was obtained, pharmacy students administered a questionnaire face-to-face in English, Mandarin or Malay, depending on the patient's preference. Patients were excluded if they did not speak any of the three languages, or if they had to leave before the questionnaire was completed.

Patients with confirmed diagnosis for hypertension, hypercholesterolemia and/or diabetes mellitus who received medications were eligible for this study. Hypertension, hypercholesterolemia and diabetes mellitus are risk factors for cardiovascular disease and stroke. Furthermore, diabetes mellitus, a risk equivalent for coronary heart disease, is one of the leading causes of disease burden in Singapore [4]. As the prevalence of these disorders are currently monitored in nation-wide surveys conducted by the Ministry of Health in Singapore[5], this allows us to compare our results with the national average in patients who are familiar with these three disorders, and use of home medical equipment such as blood pressure monitors and glucometers.

Departmental approval from the pharmacy was obtained prior to administrating these questionnaire to their patients. The questionnaire consisted of four yes-no questions regarding different patient self-management tasks. They pertained to the use of monitoring equipment at home, finding out more about these medical conditions and patient's drug knowledge, and clarifying doubts regarding health condition. These questions were adapted from a compilation of common self-management tasks by Clark et al [6]. Out of the twelve tasks listed, we extracted only those relevant tasks pertaining to our study, such as interacting with health care providers, seeking disease state information, recognizing signs and symptoms, monitoring physical indicators, and providing pharmacological management. Demographic data was also collected to allow us to identify populations with low incidences of patient self-management.

Data was analysed with SPSS Statistics 18 software. Only patients who gave "yes" responses for all four questions were deemed to have safe self-management habits. Demographics of patients were analyzed against competence by using Pearson's chi-square test. A p value of 0.05 or less was considered to be statistically significant.

Results

Patient characteristics, monthly income, and educational attainment are shown in Table 1. These patients were mostly elderly, Chinese with monthly income of less than $1500. More than 70% of these patients had attained secondary school education or less. The ethnic proportion, age distribution, and educational attainment of patients in the study differed significantly from that of Singapore's population. According to the National Health Surveillance Survey conducted in 2007 [6], the prevalence of hypertension, hypercholesterolemia and diabetes was shown to be higher in older age groups. As data was not available for the demographic composition of patients suffering from the three chronic disorders, comparisons were made to the general population instead.

Table 1: Patient Characteristics and Household Demographic Data

Characteristic	n=211	National Average (%)[a]	p value
Gender			
Male	115 (54.5)	49.3[b]	
Female	96 (45.5)	50.7	0.13
Ethnic Group			
Chinese	146 (69.2)	74.1[b]	
Malay	33 (15.6)	13.4	0.01
Indian	32 (15.2)	9.2	
Age (years)			
21-29	6 (2.8)	13.8[b]	
30-39	6 (2.8)	16.4	
40-49	28 (13.3)	16.8	<0.001
50-59	67 (31.8)	14.6	
>60	104 (49.3)	14.1	
Monthly Household Income (S$/mth)			
1500 and less	102 (48.3)	-	-
1501-3000	37 (17.5)	-	-
3001-5500	37 (17.5)	-	-
5501-8500	13 (6.2)	-	-
8501 and above	22 (10.4)	-	-
Educational Attainment			
Primary 6 and below	72 (34.1)	13.7[c]	
Secondary School	83 (39.3)	34.8	<0.001
JC/Polytechnics	23 (10.9)	24.7	
University and Above	33 (15.6)	26.7	

[a]Statistics are for overall population, including healthy residents
[b]From Census of Population 2010 Advance Census Release [7]
[c]From Labour Force Survey 2009, found in Singapore Yearbook of Manpower Statistics 2010 [8]

The majority of patients (52.1%) did not actively find out more about their own medical condition in Table 2. A common reason given by the patient to justify this behaviour was that they were content to just follow the doctor's advice (42%), as can be seen from Figure 1. A small minority of respondents were indifferent (16%), they believed it was not their responsibility to do so. More than half of these patients (55.5%) also could not remember the names of the medications they were currently taking. As shown in Figure 2, twenty six percent of the patients were unable to do so due to low English literacy levels. A further 25% found medication names to be too difficult to remember.

To assess the level of competence in disease self-management among these patients, we grouped all four questions together. Patients practising all four self-management tasks will have minimized exposure to medication errors, so those who gave positive answers for all four questions were deemed to be competent, and the rest were classified as not competent. Using this criteria, only 18% (n = 38) of the patients were competent. Comparisons were made to see if there were differences between the patients having competent self-management habits and those who were not competent.

Table 2: General Responses to Self-management Questions

	Responses in No. (%) of Patients	
	No	Yes
Use monitoring equipment at home	96 (45.5)	115 (54.5)
Read/find out more about my disorder	110 (52.1)	101 (47.9)
Know the names of the medications I am currently taking	117 (55.5)	94 (44.5)
Clarify doubts with my healthcare professional	42 (19.9)	169 (80.1)

As shown in Table 3, there was no significant difference in competent self-management habits between patients with one chronic disease and those with two or more.

Patients with household incomes of $5500 and below were classified as low income, while the rest were considered high income. This value was the 60th percentile of national household used in a recent government survey [9]. The dichotomized variable was then compared against patients' self-management practices. The proportion of patients with competent self-management practices was larger in high income patients than low income patients. High income patients were also more likely to know medication names, p<0.001.

Figure 1: Reasons given for not finding out more about own medical condition (n=110)
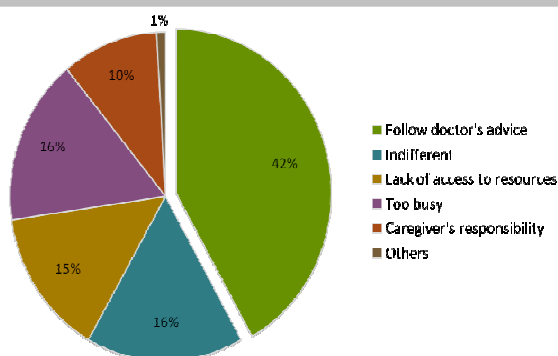
There was a positive correlation between income and education levels using Spearman's rho, p<0.001. This suggested that increased patient competence may be a result of higher overall socioeconomic status.

Table 3: Characteristics of the Populations Having Competent Self-management Habits

Characteristic	No. (%) of Patients		p value
	Not Competent (n=173)	Competent (n=38)	
Gender			
Male	92 (46.8)	23 (39.5)	0.67
Female	81 (53.2)	15 (60.5)	0.47
Race			
Chinese	126(72.8)	20 (52.6)	
Non-Chinese	47 (27.2)	18 (47.4)	0.02
Age (years)			
≤ 60	88 (50.9)	19 (50.0)	0.009
> 60	85 (49.1)	19 (50.0)	1.0
Monthly Household Income b			
Low	153(88.4)	23 (60.5)	
High	20 (11.6)	15 (39.5)	<0.001
Educational Attainment c			
Lower	137(79.2)	18 (47.4)	
Higher	36 (20.8)	20 (52.6)	<0.001
Number of Chronic Diseases			
One	93 (53.8)	22 (57.9)	
Two or More	80 (46.2)	16 (42.1)	0.72

aDefined as answering yes for all 4 questions pertaining to self-management
bMonthly Household Income: Low = S$5500 or less, High = More than S$5500
cEducational Attainment: Lower = Secondary School or Lower, Higher = Tertiary Institution or Higher

Figure 2: Reasons given for not remembering medication names (n=117)
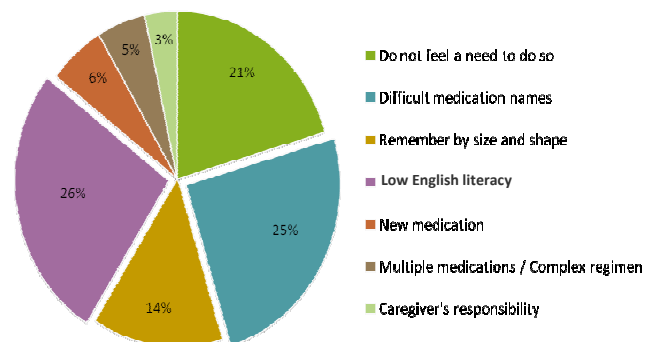
In this study, higher education was defined as completion of tertiary institutions or higher while the rest were classified under lower education. This

stratification is comparable to one study on medical compliance of hemodialysis patients which defined completion of secondary school or higher [10]. Patients with a higher education level had more competent self-management habits than those with lower education.

The majority (74.1%) [7] of Singapore's population are Chinese. Non-Chinese patients demonstrated better competence in self-management habits than Chinese patients. Non-Chinese patients were also more inclined to clarify doubts with healthcare professionals, p = 0.005.

Discussion

From the study, it can be seen that patients' motivation to find out more about their disorder and knowledge of medication names were lacking. A good way to improve on patients' knowledge of their own disease may be to use interactive multimedia, which was shown in a study conducted in Taiwan [11]. However, in our study, using Internet based tools were among the less popular forms of media which patients used (only 14.9% of respondents ranked it as their first choice). The most popular choice was medical books or health magazines (44.6%). Considering that not all patients have the requisite level of education to use these tools, a good compromise would be to distribute more pamphlets regarding self-management. Another alternative to help patient retain the complex names of their medications would be the issuing of an individualised medication list, which the patient can refer to and bring during consultations.

Socioeconomic status was shown to exhibit a positive correlation with knowledge of own disease in diabetic patients [12]. Lower educational level has also been linked to poorer knowledge of hypercholesterolemia [13]. This supports our finding that patients of lower economic or educational status were less likely to know the names of their own medication.

The low proportion of Chinese practicing active self-management of chronic diseases could be due to language barriers as well as their greater use of Traditional Chinese Medicine. Of the respondents who were unaware of the name of the medications they were taking, 32.0% of the Chinese respondents reflected that they were English illiterate as compared with Malays (12.5%) and Indians (0%). The Singapore Census in 2000 also noted that the English literacy rates of Chinese Singaporeans were lower than Malays and Indians [14]. This may have deterred Chinese patients from seeking additional information on their medical conditions as medical online databases and health-related magazines are usually available only in English. Furthermore, most of the medications sold in Singapore are usually dispensed and sold in their English proprietary names, making it difficult for Chinese patients to remember the names of their medications.

From our study, a higher proportion of Chinese respondents (26%) were noted to be using Traditional Chinese Medicine (TCM) or other herbal medicine as compared with Malays (9.1%) and Indians (9.3%). One of the main reasons for the use of TCM/herbal medicine has been attributed to patients' dissatisfaction or distrust with conventional western treatment [15,16]. With the Chinese being the most frequent users of TCM in Singapore [15], this could have led to a greater number of Chinese patients neglecting self-management of their chronic diseases especially in areas such as clarifying doubts with their healthcare professionals and remembering the names of their medications.

Limitations

The small sample size may have limited its ability to detect a difference in these patients. For example, we expected patients suffering from chronic diseases to show poorer competence in self-management habits, due to polypharmacy and complicated regimens. However, no significant difference was detected. We did not assess the degree of medication compliance in patients with one medical condition versus patients with all three medical conditions. The onset and severity of these chronic diseases were not included in the survey. Perhaps, a larger sample size and more patient-disease specifc questions might be beneficial in establishing clinical significance in a future study.

Conclusion

The majority of patients do not have competent self-management habits. This lack of wellness awarenes and poor medication adherence possed a barrier in patient-centred care. As a result, it may lead to further disease progression, increased hospital admissions, and worsening their quality of life. Income, educational attainment, and race are important predictors in determining patient's competency towards their disease management. Controlling chronic disorders require active participation from the patient; hence, cultivating good self-management habits in these patients will only increase the likelihood of successful treatment outcomes.

Acknowledgements

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