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General Public Perceptions towards Medicines in the State of Penang Malaysia

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Abstarct

Objectives: This study aims to evaluate patients' knowledge, sources of knowledge, and perceptions towards medicines in the state of Penang, Malaysia.

Materials and Methods: A cross sectional study design using convenience sampling technique was adopted in this study. A pre-validated questionnaire was developed and distributed to 800 participants in the state of Penang, Malaysia. All data was analysed using SPSS version 16. A p-value of less than 0.05 was considered significant.

Results: 700 respondents successfully responded to the survey. One third of the respondents were aware of conventional/modern medicines. Whereas only 3.3% knew what is meant by generic medicines. High proportion of respondents wrongly perceived the quality of medicines to be related to the familiarity with the medicine, frequency of advertisements, price, packaging and country of the manufacturer. In addition, friends, family members, financial status, and previous history, found to play an important role in patients decisions when selecting medicines.

Conclusion: Results of this study urge for a national awareness program to the public regarding medicines. Decision makers have to consider these findings since high proportion of the public perceive and consume medicines irrationally.

Key words

General public, perceptions, knowledge, medicines, Penang

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Introduction

Industries spend billions of dollars to develop safe and effective medications [1]. In addition, WHO, FDA, and governments work hard for setting regulations and guidelines to protect patients and to make sure that these medications are properly administered to patients and used effectively [2, 3]. At the same time, studies found that many drugs have shown lower effectiveness in the clinical practice than what was reported by the randomized control trials [4]. Many factors might influence the effectiveness of the treatment process which include the drugs, physicians, health systems and patients.[4] Patients who are the end users of medicines play a major role in the success of treatment process [5]. If patients don't use these medications as prescribed or written in the guidelines, all efforts that been paid by industries, WHO, FDA, and governments will be lost. Therefore, it is very important to evaluate and understand patients' perceptions and behavior towards medicines. Many factors could play an important role in patients' behavior towards medicines. One of these factors is patients' knowledge about medicines, as well as sources of this knowledge [6]. Many people rely on information gathered from the internet or rely on their personal or family members previous experiences [7-9] which could be at most of the time misleading. Other people rely on the information provided by health care professionals such as physicians, pharmacists or nurses whereas others acquire drug information from product packaging or advertising [9, 10]. Other factors which could play a major role in patients' behaviors towards medicines include financial status of the family, total cost of the treatment, company name, country of manufacturer, etc [8, 11].

The increase in switching of prescription drugs into non-prescription drugs has significantly played a major role in increasing self medication by patients [12-17]. This resulted in increase the risk of inappropriate use of medicines, such as overdosing, appearance of side-effects and interaction with prescribed medicines [18-20]. As a result, understanding patients perceptions, knowledge, source of knowledge and factors affecting on medicines selection are of prominent need to be studied [21].

In Malaysia, few studies have evaluated general public perceptions towards specific medicines. These studies were limited to children attitudes towards medicines [22], diabetes patients knowledge about their medicines [23] and dental students knowledge about complementary and alternative medicines [24].Therefore, to our knowledge, this is the first study of its kind in Malaysia that evaluates the general public perceptions towards medicines in general. Thus, the aim of this study is to evaluate patients'

knowledge, factors influencing on their knowledge, and perceptions towards medicines in the state of Penang, Malaysia.

Method

Study design

A cross-sectional study design was carried out in the state of Penang Malaysia from September 2010 until December 2010. 800 questionnaires were distributed to the general public using non probability convenience sampling technique.

Study setting

This study was conducted in the state op Penang, Malaysia. Penang is a multi ethnic state which consists of 1.77 million inhabitants with majority of Chinese, Malays, and Indians. Healthcare system in Malaysia is divided into public and private sectors. Public sector which is heavily used by the general public is subsidized by the government whereas private sector is targeting wealthy patients. In 2009, Malaysian healthcare industry was almost USD8.4 billion in which 60% contributed by the government [25].

Data collection tool: The questionnaire

The questionnaire was developed after extensive literature review on current issue. Face and content validation was done by a group of experts at the Discipline of Social and Administrative Pharmacy at Universiti Sains Malaysia. Questionnaire was divided into three sections. The first section consisted of seven demographic questions: gender, age, ethnicity, marital status, education level, monthly household income, and residence location. The second section comprised of seven questions to explore respondents' perceptions about medicines. The third section included 19 questions categorized into four parts i.e. general factors, financial factors, and feature of the medicine, in evaluating the consumer's priority in selecting medicines. The answer format was framed in a 5 point Likert-scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree).

Inclusion and exclusion criteria

Respondents who were at the age of 18 years old and above, able to read and write and agreed to give a verbal informed consent were included in the study. Whereas those below the age of 18 years old, unable to read or write or refused to give the informed consent were excluded from this study.

Data collection technique

Data collectors met with the respondents in the public areas of the state of Penang such as restaurants, shopping malls, bus stations as well as hospitals. First, data collectors introduced themselves to the respondents and briefed them about the study. Then, they informed them that all data will be kept confidential and their participation to the study will be voluntarily. Once the respondents gave their agreement to participate in the study, data collectors passed them the questionnaire which needed on the average of 10 minutes to be completed.

Statistical analysis

Data obtained from this survey were coded, entered and then analyzed using the Statistical Package for Social Sciences (SPSS) Version 16. Descriptive results were presented as frequencies, percentages and mean ± standard deviation (SD), Chi-square test was used to determine the association between the general public demographic profiles and their perceptions about medicines. P-value of less than 0.05 was considered significant.

Results

700 respondents successfully responded to this survey. Most of the respondents (57.6%; n=403) were females. Majority of respondents were Chinese (50.7%; n=355) and Malay (38.3%, n=268). Greater part of the respondents have passed the tertiary education level (62.1%, n=435). Table 1 summarizes the details of the respondents' demographics.

Table 2 shows respondents' understanding with different types of medicines. It was found that majority of respondents have a lack of knowledge regarding the different types of medicines. Only 37.3% of respondents knew what is meant by modern of conventional medicines whereas only 3.3% knew what is meant by generic medicine.

Table 3 shows the respondents' behavior once they have minor illness. It was found that majority prefer to see a doctor while almost one-fifth of them prefer not to take any medicine.

Table 4 explains the respondents' perceptions towards medicine. Two-thirds of respondents thought that familiar drugs are of better quality whereas almost half of respondents believed that country of manufacturer would affect on drugs' quality. Moreover, almost 60% of respondents believed that level of advertising would affect on the quality of the advertised drug. It was found that higher proportion of young respondents below 19 years old and Indians answered yes when were asked whether familiar drugs are of better quality. In addition, higher proportion of middle income RM3000-5000 and rural respondents answered yes when asked whether more expensive drugs are of better quality. Besides, higher proportion of Indian, high income and rural respondents also were affected with the country of the manufacturer.

Table 4: Respondents' perceptions towards medicines

Table 5 summarizes respondents' sources of information regarding their perceptions towards medicines. Various sources, such as pharmacist, physician, friends and experience, seemed to almost equally affect on respondents' preferences for selecting medicines. It was found that higher proportion of males, those with the age of less than 19 years old, married and live in rural areas answered agree when were asked if their preferences are affected by their doctors or physicians prescriptions.

Whereas, higher proportion of females, those with age 40-49 years old, Chinese, with household monthly income between RM3000-5000, and live in urban areas are more affected by pharmacists advices and recommendations. Furthermore, higher proportion of married respondents and who are living in rural areas agreed when asked whether their preferences are affected by comments from others who have tried the product. Finally higher proportion of respondents with age 40-49 years old

agreed to the statement that previous experience with the effectiveness of the product would affect on their preferences in selecting medicines.

Table 6 evaluated the financial impact on selecting medicines. Financial status such as family financial status, cost of medications, availability of medical insurance were found to play a foremost role in patients preferences in selecting medicines. It was found that higher proportion of females, respondents below 19 years of age, Indians, singles and those with tertiary educational level agreed to the impact of personal or family financial status would affect on their medicines' selection. In addition, higher proportion of respondents with secondary educational level and those with income between RM3000-5000 are affected with the price of the drug. Finally, higher proportion of Indian respondents agreed to the impact of the availability of insurance coverage on their drugs' selection.

Table 7 shows the other factors that might play a role in selecting the preferred medicines. It was found that product packaging, advertising, product location, product expiry date and manufacturer, played an important role in selecting the preferred medicines. Higher proportion of females, Malay, and married respondents are affected by the packaging of the product. Whereas expire date of the product has a great impact on females, respondents of less than 19 years old, Indians, and those with secondary education level than other respondents. In addition, manufacturer of the product would significantly affect on respondents of the age group between 30-39 years old, Indians, married, living in rural areas and those with no informal education.

Discussion

Patients who are the end users of the medicines are a key success factor for the treatment process. Therefore, any lack of knowledge, misconception or miss practice regarding medicines would negatively affect on drugs utilization, patients' quality of life and country resources. In this study, more than one-third of respondents were aware regarding the term conventional/modern medicines. This could be due to the frequent prescribing practices of modern medicines by prescribers and absence of generic substitution policy in Malaysia [26]. Furthermore, prescribers practices in the north east of Malaysia were found to be highly affected by drug advertisements and product bonuses offered by pharmaceutical companies, patient's socio-economic factors as well as credibility of manufacturers which influence their choice of medicine [27]. Knowledge about generic medicines concept was very poor among the respondents. This might be due to the absence of generic substitution policy in Malaysia [26]. similar findings were found in Pakistan where general public knowledge regarding generic drugs was poor [28].

One third of respondents (36.3%) preferred to see a doctor when they feel with minor illness. the absence of dispensing separation could be one of the reasons of this behavior [29]. It is easier for patients to be diagnosed and get their medications from one place. Slightly less than that percentage (30%) preferred to opt for OTC drugs from the community pharmacy. Many of them may self medicate themselves without getting the advice from the pharmacists where they just ask for a specific OTC drug. Many people believe that OTC drugs are safe and used for minor illnesses and for a short duration [14]. Therefore, self medication practices is highly prevalent in the developed countries [8, 14, 16, 30, 31] as well as in developing countries [12, 15, 32-34].

More than one-fifth of the respondents preferred to leave their immune system to fight the disease and not to take any medication. This might be due to the presence of the side effects of medicines as well as due to almost 50% of them have a low household monthly income of less than RM1000.

Respondents' perceptions towards medicines

More than half of the respondents (62.6%) believed that more expensive drugs are of better quality. This is a common perception in marketing where consumers perceive more expensive products to be of better quality [15, 16]. Another factor might be due to the believe that generic drugs are of cheaper price and lower quality where a review study found that many generics failed to be effective as the innovative alternatives [37].

72% of the respondents believed that more familiar medicines are of better quality which could be due to the belief that better drugs are more familiar among the public and frequently used among them. In addition, advertising level and country of manufacturers seems to reflect the quality of the medicines positively [38-40]. Many people believe that products are better manufactured in the developed countries compared to those manufactured in the developing countries [41, 42]. Therefore, in most cases general public trust and prefer to use western manufactured products than products manufactured in the developing countries.

Factors affecting on consumers' preferences in selecting medicines

Just more than two thirds of the respondent (68.9%, n=482) agreed that physician's or doctor's opinion is important to them when they purchase medicines. Research has shown that physician's or doctor's opinion is vital in this aspects. One of the researches on prescription switching decision also showed that physician's opinion is one of the most important factors to be considered [43]. This is an expected and undeniable finding as physicians are perceived as one of the most knowledgeable health care practitioners on drugs and medication used. In fact, closer patient-physician relationship has resulted in the general public perceives that the advice of physician is reliable. Hence, physician's opinions becomes an important factor when comes to the drug decision making process.

There is a significant association (p=0.003) between general public's residential areas with the physician's opinion in making medication purchasing choice. This is because the different place of growing up would affect the knowledge and information exposed to them which leads to different perception towards medicine. Besides, the

culture at the place of growth of respondents would definitely influence on their. In the USA, a study found that Immigrants, who had recently arrived to the USA, tended to find ways to hold on to the culture that they had left behind either physically or spatially by maintaining their old customs and habits [44].

Almost two-thirds of the respondents (66.7%, n=326) agreed that pharmacist's advices and recommendations affect on their decisions in purchasing medicines. This may be due to the fact that most of our respondents were highly educated thus they are more aware of the role of pharmacists in the health care provision. Studies showed that there is a shift of pharmacist role from traditional dispensing to more up front patient counseling and education. Patients are now more encouraged to seek advice from their community pharmacist [45].

Nearly half of the respondent (56.1%, n=393) agreed that comments from previous user of the particular drug is important to their decision to purchase medicine. There were several studies suggested that social relationships (friends and family members) may influence the decision to use Complementary and Alternative Medicine (CAM). For example, a qualitative study of arthritis patients who used CAM revealed that personal testimonials and recommendations from family and close friends were often precursors to the decision to use CAM [46]. Similarly, research indicates that friends and family members were among those who mostly used sources of CAM information [47, 48].In conclusion, these findings are consistent with a consumer decision-making view of medication use, suggesting that trusted social relationships serve as a valued external information source in the decision to use any medication in the absence of prior personal experience. A study had shown that past experiences of friends and relatives affect a person's treatment decisions. Most respondents knew or had heard of other people who had undergone similar treatments. Past treatment choices of relatives, friends, or acquaintances affected the present treatment choices and affected some people's attitudes and beliefs about the potential success or failure of a particular treatment [49].

Personal or family financial status and cost of medicines were important drivers for medicines selection. Most of our respondents' household monthly income was of less than RM3000 (73%). Therefore, cost of treatment was an important concern to them. This is due to the fact that they often face budget constraints. This is rational because for low incomes, it will be a financial burden to contribute out-of-pocket payments. In contrast, those with higher income are willing to pay in order to get a good quality pharmaceutical care service in return. For example, in order to treat common diseases such as diabetes and viral illnesses, patients have to pay 2 days' and 8 days' salary to buy the innovator versions of glibenclamide and acyclovir, respectively.[50] Therefore, more often generic drug will become the choice for individual with low financial status compared to branded drugs. Some studies have found that people who are willing to pay for medical tratment are people with high income [51].

Majority of the respondents (49.3%) agreed that packaging of the product did affect their selection for medication and another 14.9% of the respondents disagreed with the statement. Most of the respondents might felt that packaging is crucial for them in identifying the brand and help their purchasing decision. Some of the respondents judged on the product attractiveness before purchasing. Only minority of the respondents do not depend on product packaging while purchase medicines [52]. Gender (p=0.041), ethnicity (p=0.037), and marital status (p=0.028) showed a statistically significant association for the product packaging. Packaging of the product plays an important role in marketing process as it illustrates the quality and the image of the product. For instances, blisters medications are gaining popularity among the consumers compared to solid medications such as tablets. Attractive and innovative packaging assists in improving the shelf visibility, improve functionality, improve medication adherence and boost customer satisfaction [52].

Study Limitations

This study utilized a non-random convenient sampling technique of the general public in the state of Penang only, limiting the generalizability of the findings. General public in other states were not included in the study. Hence, the results may not accurately represent the whole population of general public.

Conclusion

Pharmacists and physicians were found to be the main sources of knowledge about medicines. Whereas, many respondents tend to rely on their own experience, friends, and relatives as sources on medicines information. Miss concepts about the quality of medicines were found highly prevalent among the respondents. They believed that country of manufacturing, advertising level, familiarity with the product, packaging and price of the medicine are the indicators for its quality. Therefore, it is recommended to conduct national awareness programs about medicines safety and the reliable sources of knowledge about medicines. It is also recommended to extend this project to include all other states in Malaysia.

Conflict of Interest

Authors have disclosed no conflict of interest

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Table 1: General characteristics of the respondents

	Demographic characteristics	Frequencies(n)	Percentages (%)
Gender	**Male**	295	42.1
	Female	403	57.6
Age	**≤19**	19	2.7
	20-29	424	59.1
	30-39	159	22.1
	40-49	82	11.7
≥50		26	3.7
Ethnicity	**Malay**	268	38.3
	Chinese	355	50.7
	Indian	69	9.9
	Others	8	1.1
Education Level	**Informal education**	37	5.3
	Primary School	36	27.4
Secondary School		192	35.3
	Tertiary School	435	62.1
Marital Status	**Single**	446	63.7
	Married	251	35.9
Household monthly income	**<RM1000***	247	35.3
	RM1000-RM3000	264	37.7
	RM3001-RM5000	109	15.6
>RM5000		80	11.4
Residence of location	**Rural**	228	32.6
	Urban	472	67.4

* 1 USD = RM3.2

Table 2: Knowledge about different types of medicines

I understand what is meant by:	Response	
	Frequencies (n)	Percentages (%)
Conventional/modern medicine	261	37.3
Prescribed medicine	114	16.3
Generic medicine	23	3.3
Traditional and complementary medicine	130	18.6
Poison/ controlled medicine	93	13.3
Over-the-counter (OTC) drugs	42	6.0
Patented medicine	37	5.3

Table 3: Response to minor illnesses

If I have a minor illness, I will	Response	
	Frequencies (n)	Percentages (%)
See the doctor	254	36.3
Opt for OTC drugs from a community pharmacy	210	30.0
Use traditional medicine	77	11.0
Prefer not to take any medications	159	22.7

Table 4: Respondents' perceptions towards medicines

Section	Responses (n) (%)		Chi-square test exact *p*-values (p<0.05)						
	Yes	No	Gender	Age	Ethnicity	Marital status	Education level	Monthly income	Residence location
Do you think that a more expensive product indicates a better quality?	438 (62.6)	260 (37.1)	0.359	0.418	0.276	0.239	0.452	<0.001	<0.001
Do you think that medicines of more familiar brand to you have a better quality?	506 (72.3)	194 (27.7)	0.157	0.007	0.032	0.063	0.078	0.363	0.492
Does the advertising level affect your perceived quality of the medicines?	413 (59.0)	285 (40.7)	0.539	0.369	0.448	0.225	0.560	0.029	<0.001
Does the country of manufacture affects your selection for drugs of the same effect?	373 (53.3)	3274 (6.7)	0.337	0.824	0.044	0.429	0.181	0.000	0.012

Table 5: Factors that affect on the consumers' preferences in selecting medicines

Questions	Responses					Chi-square test exact *p*-values						
	SD (n) %	DA (n) %	N (n) %	A (n) %	SA (n) %	Gender	Age	Ethnicity	Marital status	Education level	income	Residence location
Your doctor's or physician prescription.	6 (0.9)	23 (3.3)	189 (27.0)	317 (45.3)	165 (23.6)	0.020	0.002	0.096	<0.001	0.555	0.100	0.003
Your pharmacist's advice and recommendation.	3 (0.4)	26 (3.7)	204 (29.1)	326 (46.6)	141 (20.1)	0.002	0.004	<0.001	0.884	0.028	0.042	0.010
Comments from others who have tried the product.	8 (1.1)	76 (10.9)	223 (31.9)	320 (45.7)	73 (10.4)	0.064	0.345	0.140	0.041	0.236	0.078	0.003
Previous experience on the effectiveness of product.	2 (0.3)	28 (4.0)	162 (23.1)	346 (49.4)	162 (23.1)	0.059	0.013	0.128	0.652	0.002	0.055	0.107

Note: SD: Strongly Disagree, DA: Disagree, N: Neutral, A: Agree, SA: Strongly Agree

Table 6: Financial factors affecting on medicines' selection

Questions	Responses					Chi-square test exact *p*-values						
	SD (n) %	DA (n) %	N (n) %	A (n) %	SA (n) %	Gender	Age	Ethnicity	Marital status	Education level	income	Residence location
Personal or family financial status.	2 (0.3)	28 (4.0)	162 (23.1)	346 (49.4)	162 (23.1)	0.040	0.032	0.049	0.004	0.004	0.134	0.745
Cost or price of medicines.	1 (0.1)	50 (7.1)	138 (19.7)	381 (54.4)	130 (18.6)	0.509	0.144	0.218	0.693	0.035	0.002	0.635
Total cost needed to complete the whole course of treatment.	1 (0.1)	33 (4.7)	176 (25.1)	332 (47.4)	158 (22.6)	0.140	0.010	0.886	0.967	0.664	0.073	0.317
Coverage of medical insurance.	0 (0.0)	44 (6.3)	236 (33.7)	297 (42.4)	123 (17.6)	0.607	0.807	0.017	0.299	0.691	0.088	0.623

Note: SD: Strongly Disagree, DA: Disagree, N: Neutral, A: Agree, SA: Strongly Agree

Table 7: Other factors that might affect on selecting the preferred medicines

Questions	Responses					Chi-square test exact *p*-values						
	SD (n) %	DA (n) %	N (n) %	A (n) %	SA (n) %	Gender	Age	Ethnicity	Marital status	Education level	income	Residence location
Packaging of the product.	21 (3.0)	83 (11.9)	251 (35.9)	251 (35.9)	94 (13.4)	0.041	0.065	0.037	0.028	0.456	0.059	0.053
Expiry date of the product.	4 (0.6)	30 (4.3)	152 (21.7)	320 (45.7)	194 (27.7)	0.044	<0.001	<0.001	0.542	0.002	0.319	0.063
Company of manufacture.	5 (0.7)	101 (14.4)	242 (34.6)	261 (37.3)	91 (13.0)	0.100	0.011	0.024	<0.001	0.015	0.052	<0.001
Ease of getting the product (location of pharmacy).	4 (0.6)	44 (6.3)	181 (25.9)	330 (47.1)	141 (20.1)	0.256	0.305	0.086	0.082	<0.001	0.152	0.122

Note: SD: Strongly Disagree, DA: Disagree, N: Neutral, A: Agree, SA: Strongly Agree