A QUALITATIVE AND QUANTITATIVE ASSESSMENT OF MEDICINE USE PATTERNS AND PRACTICES AMONG GENERAL PUBLIC IN THE STATE OF PENANG, MALAYSIA

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by

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DEDICATION

I dedicate this thesis to my beloved family (my wife Halah and my daughters Reem and Rand), my mother, brothers and sister; their endless support of love, encouragement and prayers making me working hard to achieve my goals.

Thank you for the love and all the sacrifices for making this thesis publication a reality

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LIST OF ABBREVIATIONS

CD	Chronic Disease
CAM	Complementary and Alternative Medicines
DEFF	Design Effect
FGD	Focus Group Discussion
GIT	Gastro-Intestinal Tract
NCD	Non-Chronic Disease
NSAIDs	Nonsteroidal Anti-Inflammatory Drugs
NSUM	National Survey on the Use of Medicines
OR	Odd Ratio
OTC	Over-the-counter medicine
SD	Standard Deviation
SPSS	Statistical Package for Social Sciences
SDGs	Sustainable Development Goals
WHO	World Health Organization

APPENDICES

PENILAIAN KUALITATIF DAN KUANTITATIF CORAK DAN AMALAN PENGGUNAAN UBAT-UBATAN DALAM KALANGAN MASYARAKAT UMUM DI NEGERI PULAU PINANG, MALAYSIA

ABSTRAK

Penggunaan ubat secara tidak rasional menjadi masalah global dalam kalangan negara maju dan negara yang sedang membangun. Penggunaan ubat-ubatan merupakan amalan biasa untuk kebanyakan orang dalam merawat masalah kesihatan mereka. Corak dan amalan penggunaan ubat-ubatan ini dipengaruhi oleh pegawai kesihatan yang membekalkan mereka dengan ubat-ubatan, pengalaman mereka sendiri dan juga saluran informasi yang lain. Hanya terdapat sedikit maklumat untuk memahami corak dan amalan penggunaan ubat-ubatan dalam kalangan rakyat Malaysia. Kaedah campuran telah digunakan untuk menghuraikan penggunaan ubat-ubatan secara berkualiti dalam kalangan orang awam di negeri Pulau Pinang, Malaysia. Pendekatan kualitatif telah dilaksanakan dengan menggunakan perbincangan terhadap dua kumpulan berfokus untuk mendapatkan maklumat yang lebih mendalam mengenai corak dan amalan penggunaan ubat-ubatan daripada orang awam. Menerusi analisis kandungan bertema mendapati terdapat sedikit salah faham mengenai penggunaan ubat-ubatan yang betul. Kebanyakan responden kajian melaporkan mereka mematuhi preskripsi ubat-ubatan yang diberikan. Tambahan pula, responden kajian menyatakan mereka menggunakan ubat-ubatan mengikut pengetahuan mereka sendiri dan juga pengalaman yang lalu. Terdapat juga responden lain yang mengambil ubat-ubatan dengan menurut kepada sumber yang tidak formal seperti ahli keluarga, rakan-rakan atau pun media. Kebanyakan responden kajian pernah mengalami kesan sampingan ubat-ubatan, sesetengah

daripada mereka melaporkannya kepada doktor dan terdapat juga antara mereka yang terus berhenti mengambil ubat-ubatan tersebut tanpa memberitahu kepada doktor mereka. Selain itu, pendekatan kuantitatif juga telah dilaksanakan dengan menggunakan tinjauan keratan rentas untuk menilai amalan penggunaan ubat-ubatan dalam kalangan masyarakat. Kaedah persampelan mudah telah digunakan untuk menjemput para responden kajian untuk menyertai tinjauan yang dilakukan. Soal selidik yang dijawab sendiri telah digunakan untuk mengumpul data. Sebanyak 888 borang soal selidik telah dilengkapkan dan dipulangkan kepada pengkaji. Data-data tersebut telah dikodkan dan dianalisis menggunakan statitistik deskriptif dan inferensial untuk mencari perbezaan antara faktor aras keyakinan sebanyak 95%, di mana nilai-p yang kurang daripada 0.05 dikira sebagai signifikan. Dapatan kajian menunjukkan kebanyakan orang awam menggunakan vitamin dan mineral (53%), pelega kesakitan (38.5%), makanan tambahan kesihatan (35.5%) dan minuman herba (27.1%) manakala 34.1% daripada mereka dilaporkan menggunakan antibiotik dan sebanyak 14.8% menggunakan ubat penyakit kronik untuk merawat penyakit kronik yang dihadapi. Data sosio-demografi dan kehadiran penyakit kronik adalah perkaitan yang signifikan dengan penggunaan beberapa jenis ubat-ubatan ($p<0.05$). Dengan tingkah laku yang mementingkan ubat-ubatan, kebanyakan responden memilih untuk berunding dengan doktor apabila mereka mengalami apa-apa masalah kesihatan (66.7%), diikuti dengan rawatan sendiri (20.9%). Pesara telah memilih untuk mendapatkan nasihat doktor sebagai langkah pertama apabila mereka mengalami masalah kesihatan (OR 3.05, 95% CI 1.04-8.89), dan responden Melayu sebagai rujukan berbanding responden Cina dan India (OR 0.47, 95% CI 0.34-0.67). Kelaziman untuk rawatan sendiri pula ialah 54%. Tambahan pula, kajian ini menunjukkan responden mempunyai pengetahuan yang sedikit mengenai beberapa

aspek dalam penggunaan ubat-ubatan (Min±SD = 6.45±2.43). Selain itu, terdapat amalan yang tidak betul dalam penggunaan ubat-ubatan daripada aspek pengambilan ubat yang kurang daripada dos yang ditetapkan, berkongsi ubat dengan orang lain, menggunakan semula preskripsi lama, berhenti mengambil ubat yang telah dipreskripsikan dann tidak melaporkan kepada doktor mengenai ubat-ubatan lain yang diambil (Min±SD= 35.15±8.32). Responden dengan skor tahap pengetahuan yang tinggi lebih cenderung untuk menggunakan ubat-ubatan dengan secara berhemah (OR-1.26, 95% CI 1.17-1.35, p<0.001). Memberikan maklumat yang secukupnya adalah penting menerusi program intervensi supaya risiko penggunaan ubat yang tidak berhemah dapat dikurangkan dan begitu juga dengan kesan daripada amalan pengambilan ubat yang tidak betul juga akan dapat dikurangkan.

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ABSTRACT

The irrational use of medicines is a global problem in developed and developing countries worldwide. The use of medicines is a common practice for many people to treat their health problems. The patterns and practices of medicines use are often influenced by the health care professionals who provides them with medicines, past experience with medicines and other information channels. There is a little information available to understand the pattern and practice of medicines use among Malaysians. This mixed research was used to describe the quality use of medicines among general public in the state of Penang, Malaysia. A qualitative approach was undertaken by using two focus groups discussion to obtain in-depth information about medicines use pattern and practice from the general public. Thematic content analysis of the interviews found that there are some misunderstanding about the appropriate use of medicines. The majority of the participants reported that they were complying with their medication regimen. In addition, participants reported using medicines according to their own knowledge and past experience. Whereas other participants took medicines according to other informal resources such as family, friends or the media. Most participants have experienced side effects while using medicines, some of them informed their doctor while others stopped taking medicines without informing their doctor. Moreover, quantitative approach was conducted by using a cross-sectional survey to assess the practices of using medicines in the community level. A convenience sampling

method was used to invite the respondents to participate in this survey. A self-administered questionnaire was used for data collection. A total of 888 questionnaires were completed and returned to the researchers. The data were coded and analysed by using descriptive and inferential statistics to find the differences between factors at a confidence level of 95%, p-value less than 0.05 was considered significant. The findings showed that most people commonly used vitamins and minerals (53%), pain relievers (38.5%), health supplements (35.5%) and herbal beverages (27.1%), while 34.1% of them reported using antibiotics and 14.8% using chronic medicines for their chronic diseases. The socio-demographics data and the presence of chronic diseases were significantly associated with using some sorts of medicines ($p < 0.05$). With regards to medicines seeking behaviour, most of the participants chose to consult the doctor when they experience any health problems (66.7%), followed by self-medication (20.9%). The first action for consulting the doctor was significantly predicted by retired people (OR 3.05, 95% CI 1.04-8.89) and Malay respondents as a reference comparing to Chinese and Indians (OR 0.47, 95% CI 0.34-0.67). The prevalence of self-medication was 54%. In addition, this study indicated that the respondents have limited knowledge about some aspects of medicine use (Mean±SD= 6.45±2.43). Additionally, there were inappropriate practices of using medicines in terms of taking less than the recommended dose, sharing medicines with others, reusing old prescriptions, stopping use of prescribed medicines, and not informing a doctor about other medications used (Mean±SD=35.15±8.31). Respondents with a higher score of knowledge were more likely to use medicines appropriately (OR= 1.26, 95% CI 1.17–1.35, $p<0.001$). It is important to provide sufficient information about medicines use through an

intervention programmes in order to decrease the risk of inappropriate use of medicines and the outcomes related to such practices.

CHAPTER 1

GENERAL INTRODUCTION

1.1 Background of the study

Medicines are an important need for the humans in reducing the morbidity and mortality of many diseases (Lu et al., 2011). Therefore, many countries are promoting the concept of 'Quality Use of Medicines' in order to achieve the rational use of medicines. The Quality Use of Medicines can be defined as 'patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, and the lowest cost to them and their community' (World Health Organization, 2001). The irrational use of medicines is recognized to have a negative impact on health outcomes, raise adverse drug reactions and health costs among healthcare consumers around the world (Del Rio et al., 1997, Hardon et al., 2004, Le Grand et al., 1999). According to World Health Organization, approximately half of all medicines globally are used inappropriately (Hardon et al., 2004). This can cause severe health implications, including adverse drug reactions, drug resistance, protracted illness and even death. In addition, the financial cost incurred by individuals and governments due to irrational use is unnecessary and often extremely high, particularly in developing countries where patients often pay for medicines out of their own pockets (Hardon et al., 2004, World Health Organization, 2001). However, there are many kinds of irrational use of medicines including the overuse of medicines, inadequate treatment of a serious illness, misuse of antibiotics, over-use of injections, self-medication of prescription medicines and non-adherence to treatment regimen. Data from many countries shows that such practices are common, and not limited to developing

countries (Fresle and Wolfheim, 1997, Hardon et al., 2004, World Health Organization, 2001). Consequently, to improve the use of medicines, initiatives are implemented around the world in order to ensure better health outcomes, reducing adverse drug reactions and keeping the affordable costs for healthcare (World Health Organization, 2001). Generally, the health care systems in both developed and developing countries is essentially targeting to enable the timely access to medicines and empowering the quality use of medicines (Kay et al., 2016). Thus, the Ministry of Health Malaysia (MOH) created a national strategy for the Quality Use of Medicines (QUM). This strategy aims to promote QUM through effective self-care practices by implementing an educational intervention through 'Know Your Medicine' campaign (Bahri et al., 2009). Consumer behaviour is a major factor influencing the use of medicines which require strategies to improve the use of medicines in any country endeavour to foster the rational use of medicines (Kirkpatrick et al., 2005). In the year 2012, a national survey was conducted to describe the use of medicines among Malaysian consumers showed that 43.5% did not understand the proper use of their medicines, 35.8% were not aware of the side effects of their medicines and 34.7% of them were not aware of the possible interaction between traditional and modern medicines (Hassali et al., 2013). Health care professionals can reduce drug-related problems among consumers when work together collaboratively by educating, counseling and providing evidence-based information to the patients/consumers in order to optimize medicine use (Kay et al., 2016). However, inadequate knowledge and awareness about medicines use can affect the practice of the safe use of medicines among people. Therefore, this study will help to give an insight on the current patterns and practices of medicines use

among public and to determine the factors that may influence the inappropriate use of medicines among Malaysian population.

1.2 Statement of the problem

Despite Malaysians' spending on healthcare, their knowledge on medicines use appears to be inadequate (Bahri et al., 2009). The irrational use of medicines has become a major concern for the public health authorities. Accordingly, Malaysia has similar concerns about the irrational use of medicines (Bahri et al., 2009, Hassali et al., 2013). The irrational use of medicines leads to adverse health consequences such as increasing the adverse drug reactions and healthcare costs among medicines users around the world (Del Rio et al., 1997, Hardon et al., 2004, Le Grand et al., 1999). The irrational use of medicines is a global problem that reported in both developing and developed countries. In developing countries, this problem is vast and not well documented. Usually, communities of developing countries have limited knowledge and awareness on the safety of medicines commonly found in home and the proper storage of medicine (Hassali et al., 2012, Kheir et al., 2011). However, WHO indicated that more than 50% of all medicines worldwide are prescribed, dispensed, or sold inappropriately, while 50% of patients be unsuccessful to take their medicines appropriately (Hardon et al., 2004). Moreover, around one-third of the world's population lacks access to essential medicines (World Health Organization, 2002). This make patients more involved in taking action with or without direct health care professional guidance, seeking for other facilities to obtain medicines or tend to self-care (Hassali et al., 2013). Besides that, most of the people still have low awareness regarding the sources of information about medicines. They are advised

by their family or friends to try the treatment and very few of them will refer to doctors (Abdallah, 2014).

1.3 Aims of the study

This study aimed to describe the quality use of medicines among general public in the State of Penang. The patterns and practices of safe use of medicines are expected to reflect the health situation among the population. There are many types of irrational use of medicines including poly-pharmacy, wrong medicines, unsafe medicines, self-medication and medication non-compliance are problems related to medicines use, especially among young people. However, there is little information about the patterns and practices of medicine use and its safety concerns among the Malaysian population.

Secondly, Penang State has a high density of population compare to other states and consists of the main three ethnic groups in the country. Thus, the pattern of medicines use of public will provide an opportunity to explore the prevalence of using prescription and non-prescription medicine among the population as well as reflecting the current situation on medicines use in another area within the country due to the similarity of socio-behavioural pattern.

Thirdly, identify the patterns of medicine use among public will provide an insight into the utilization of medicines by the overall population. This is very important for policymakers and health professionals to design a better strategy for preventing irrational use of medicines in addition to promote a rational use of medicines.

Finally, this study will help the health care professionals to understand how medicines are being used among their population to pay their attention towards

taking an active role in communicating with patients and educating them about the safe use of medicines and to implement an intervention program to enhance their knowledge and awareness on the concept of rational use of medicines.

1.4 Justification of the study

This study focused on the factors influencing medicine use in the community level. Although much effort has been made by health authorities to develop a national medicines policy, strengthen drug regulation and improve the prescribing pattern of health care givers, still little efforts have been made to ensure the rational use of medicines among consumers. The interventions for rational use of medicines are often focusing on health care prescribers and these interventions can partly improve the use of medicines. This can be explained by what have been found in the previous studies on medicines use which are shown that people tended to self-medication and influenced by informal sources of information about medicines and often rely on private distribution channels to get medicines as much as a community pharmacy (Hardon et al., 2004, Hassali et al., 2011). Therefore, this study is very important to address the irrational use of medicines that may occur in public of the State of Penang, as well as to describe the prevalence of such problems in order to change the strategies and improve the rational use of medicines. In addition, the study will explain the reasons of irrational use of medicines so this also can play a major role in creating an appropriate and effective strategy to achieve the rational medicines use in the country.

1.5 Study objectives

1. To explore the factors related to use of medicines among general public in the State of Penang.
2. To evaluate the patterns of medicines use among general public according to their demographic characteristics (age, gender, race, education level, occupation, living status, socioeconomic status, and health condition).
3. To evaluate the medicines seeking behaviour and the self-medication practice among general public according to their demographic characteristics.
4. To evaluate the perception towards medicines labelling and the resource of information about medicines among general public.
5. To evaluate the knowledge and practices of the safe use of medicines among general public according to their demographic characteristics

1.6 Thesis overview

This study was carried out in the State of Penang, Malaysia. This study utilized both qualitative and quantitative research approaches.

Chapter 2 explored the literature review, and exploring the current irrational use of medicines issues at the household and community levels, the pattern of medicines use, knowledge and practice of safe use of medicines, health seeking behavious and medicines taking behaviour, perception towards medicines labelling, and the resources of information about medicines.

Chapter 3 described the qualitative and quantitative methodologies that are related to the work in this thesis.

Chapter 4 explored the findings from interviews conducted on general public in Penang State to get in depth understanding about the patterns and practices of medicines use.

Chapter 5 assessed the patterns of medicines use among general public in the State of Penang.

Chapter 6 assessed the health seeking behaviour, medicines taking behaviour, and the perception towards medicines labelling among general public in the State of Penang.

Chapter 7 assessed the knowledge and practice of the safe use of medicines among general public in the State of Penang.

Chapter 8 developed an intervention module for future studies to improve the use of medicines among general public.

Chapter 9 outlined the thesis overall conclusions and it provided recommendations in the concept of rational use of medicines.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In primary care less than 40% of the patients in the public sector and 30% of patients in the private sector are treated in accordance with standard treatment guidelines (Cameron et al., 2011). The irrational use of medicines occurs in all settings of health care; from hospital to home. Irrational use of medicines is increasing due to many factors such as consumers' misleading beliefs and poor knowledge, prescribing pressures, professional, prescriber's profit driven approach, the promotional manners by the pharmaceutical manufacturing and lack of strengthening in regulations by regulatory (Holloway, 2006). Common examples of irrational use of medications including the usage of too many medications especially among elderly people, overuse of antibiotics even for non-bacterial infections, overdose or underdose of some medications, widely prescribing of injection when oral medications are effective, self-medication and prescribing pattern that not according to the approved clinical guidelines (Akl et al., 2014, World Health Organization, 2002). Furthermore, in poor setting communities, the medications are sold in many markets by unqualified persons without much control from the local health authorities. The continuous widely spread of irrational use of medications cause negative health outcomes and economic burden influencing both consumers and governments.

2.2 Access to essential medicines

Challenges regarding the access to medicines is affecting more than one-third of the populations globally where they lack access to medicines and they are susceptible to diseases and death (Al-Tamimi et al., 2013). Access to essential medicines is defined as the timely use of standard medicines according to needs and it should be accessible and available in the region, as well as affordable and acceptable by the patients (Al-Tamimi et al., 2013, Peters et al., 2008). Access to affordable medicine is included in Sustainable Development Goals (SDGs) and encouraging the cooperation with pharmaceutical industrial companies to provide access to essential medicines in developing countries (Gotham et al., 2016). In spite of years of implementing policies by governmental and non-governmental organizations to enhance the equitable, affordable and timely access to medicines, but this matter still a problem to most of developing countries (Shroff et al., 2016). The WHO estimates that around 2 billion of the world populations are lacking of regular access to medicines and most of these peoples living in the developing countries where they are spending 24–60% of national health expenses for the pharmaceutical expenditures (Paniz et al., 2010).

2.3 Cost of medicines

In contrast to the rational use of medicines, the inappropriate use of medicines will waste the resources and harm the individuals. Pharmaceutical global spending has reached around USD 1 trillion annually and accounts for more than 65% of total health expenditure which paid out of pocket by medicines consumers (Wagner et al., 2014). The pharmaceutical market usually subdivided to 3 markets: community patient over-counter medicines, inpatient hospital medicines and outpatient

prescribed medicines. The spending for outpatient prescriptions is considered as the largest proportions of pharmaceutical expenditure (Nguyen et al., 2015). The price of medicines essentially influences the accessibility and affordability to medicines. The WHO recommends the health authorities in the countries to implement policies and strategies that control the medicines cost and make them accessible to individuals and populations (Vogler and Kilpatrick, 2015). The change of consumption and prices are the main reasons among others (e.g. population ageing, new medications and spreading of disease, national health expenditure growth, increases in reimbursements for physician services) that caused the rise in drug prices (Nguyen et al., 2015). Knowing the medicine prices by health care professionals, especially prescriber is an important factor in cost effective prescribing (Ahmad, 2013).

2.4 The pattern of medicines use

Medicines are required to treat diseases and alleviating their symptoms,(Morgan et al., 2012, Ocan et al., 2014) as well as to manage health risk factors and to improve well-being (Morgan et al., 2012). Most people tend to keep medicines at home, especially non-prescription medicines. The common medications kept in the household were antibiotics and painkillers (Ocan et al., 2014). The pattern of medicines use among the general public is not well documented in terms of combining prescription and non-prescription medicines, as well as complementary medicines (Byles et al., 2003, Hancock et al., 1992). The high amount of medicines used, drug advertisements and the rationality of such use have become a major concern for the public health authorities in many countries (Capella, 1993, Lee and Bergman, 1994). In the United States, the healthcare system spends most on prescription and over-the-counter medicines, including vitamins, minerals,

supplements and herbal products (Slone Epidemiology Center, 2006). The use of non-prescription medicines and complementary medicines are significantly increased among many people due to their availability and accessibility in community pharmacies, supermarkets and traditional practitioners (MacLennan et al., 2006, Williamson et al., 2008). In Malaysia, the National Survey on the Use of Medicines (NSUM) by Malaysian consumers showed that around 40% of Malaysian consumers were using some forms of pharmaceuticals, traditional health compounds and beauty products in their everyday life to manage their health, general well-being and appearance (Hassali et al., 2013). In the year 2015, the NSUM explored the pattern of medicine use showed that around 30% of the respondents reported using medicines for their chronic diseases. In addition, 31.8% of the respondents were using vitamins and 21.5% using minerals and supplements. The respondents were also reported using non-processed herbs (7.9%), processed herbs (11.5%) and herbal beverages (16.9%) (Pharmaceutical Services Division, 2016).

In Australia, a national survey among 4500 Australians at the age of 50 years and older indicated that 87.1% of the respondents have taken one or more medicines and 43.3% have used five or more in the past 24 hours. Out of 87.4% of respondents who used both conventional and complementary medicines, 46.3% of them were used complementary medicines. The pattern of medicines used among the respondents was anti-hypertensive agents (43.2%), fish oil and glucosamine (32.4%) and anti-lipidemic agents (30.4%). However, this study indicated that females were more likely to use medicines compared to males (90.3% vs 83.9%). The number of medicines used was increasing with people in advanced age of 75 years and older

(66%) compared to 50-64 years (32.2%) and 65-74 years (49.4%) (Morgan et al., 2012).

In United States, a survey was conducted in adult and paediatric populations in 2006 found that most adults (82%) has taken at least one medicine, including conventional or complementary medicines; and 29% have taken five or more. The most common medications used among adults in a given week were prescription medicines (52%), vitamins and minerals (41%), herbal and natural products (22%), acetaminophen (19%), aspirin (18%) and ibuprofen (17%). From the respondents who were reported using prescription medicines, 32% of them used herbal and natural products. However, people aged 65 and older in both genders were represented the highest percentage of medicines users in a given week for at least five medicines (57-59%). In addition, older women ≥65 years old were more likely to use vitamins and minerals for 63% (Slone Epidemiology Center, 2006).

In Canada, a study was conducted by Neutel and Walop showed that 30% of male respondents and 46.3% of female respondents used one or more pharmaceutical products in the past two days prior to the survey. The pattern of medicines used by the respondents was 38.4% including the prescription and over the counter medicines (no vitamins or mineral included), 9.8% of them were pain killer, 9.1% as antihypertensive and 6.2% as herbal products. However, 26.7% of the respondents reported using vitamins and minerals in the past two days prior to study. The pattern of medicines used was associated with females, older age groups, lower income, poor health, reported frequent pain, depression, stress and chronic diseases. Females

are two times likely to used medicines in the past two days compared to male respondents (Neutel and Walop, 2005).

In Spain, a cross-sectional study was carried out through health interview survey in Barcelona. The prevalence of consuming medicines (prescription and non-prescription) in the past two weeks prior to the study was 75.8% for females and 60% for males. Within the non-prescription medicines, the most common medicines used were analgesics in both genders with good or poor health perception. Regarding the prescription medicines, anxiolytics and analgesics were used more likely among females with poor perceived health. In addition, the use of non-prescription medicines was associated with young people; while using prescription medicines was associated with older people and poor health status. On the other hand, the advantaged social class of males with good health was associated with using non-prescription medicines compared to lower social class (38.7% vs 31.8%). However, people with poor health and higher social class were associated with using more prescription medicines compared to lower social class. This study also indicated that the employment status was influenced the use of medicines. People with good health who are retired, unemployed and students were more likely to use prescription medicines (Daban et al., 2010).

A study by Novignon and colleagues was conducted among 2506 individuals in Malawi to find the use of the non-prescription medicines. The results indicated that the use of non-prescription medicines was not influenced by the health facility in the community. However, the older age and higher income were more likely to use non-prescription medicines. In addition, the respondents who had reported poor self-

assessed health were more likely to use non-prescription medicines (Novignon et al., 2011).

From the above reviews, its found that many people have high consumption of medicines in order to prevent future disease in addition to high levels of polypharmacy including the use of prescription medicines, traditional medicines, vitamins, and health supplements (Morgan et al., 2012, Slone Epidemiology Center, 2006). In Malaysia, there is a widespread use of pharmaceuticals among consumers not only to maintain their health but also to improve their vitality and appearance (Hassali et al., 2013). The safe and effective use of medicines in the community should be supported by good strategies to ensure the quality use of medicines. These kinds of strategies can help to support consumers in accessing to accurate information about medicines and to improve health literacy about the use of medicines (Morgan et al., 2012).

However, other studies are more involved to highlight the social determinants of prescription and non-prescription medicines use (Daban et al., 2010, Neutel and Walop, 2005). The health needs is obviously affecting medicines consumption, while there are social determinants such as age, gender and perceived health status influencing medicine consumption (Daban et al., 2010, Novignon et al., 2011). In addition, people with good health, retired people, unemployed females and students are more likely to use prescribed medicines (Daban et al., 2010). Other previous studies showed that the pattern of medicines use is increasing with older age, females and in the presence of chronic diseases (Loyola Filho et al., 2002, Morgan et al., 2012, Neutel and Walop, 2005, Ribeiro et al., 2008). In addition, higher consumption

of medicines was associated with higher levels of income and more educated people (Nielsen et al., 2003, Ribeiro et al., 2008).

On the other hand, access to healthcare facilities, low levels of self-assessed health status, and household health expenditure are significantly influencing the use of non-prescription medicines (Novignon et al., 2011). Therefore, more attentions should be paid towards the social and economic characteristics of the population.

2.5 Health seeking behaviour and self-medication

Health seeking behaviour is necessary to be viewed among patients to give an insight about the health care system as patients obtain their medicines from different sources such as general practitioners, pharmacists, other medical specialists, and traditional practitioners, or those initiated by themselves (The Royal Australian College of General Practitioners, 2011). Most people can easily access to non-prescription medicines to use them for short term and for minor illnesses while considering doctors consultation only for major health problems (Chua and Sabki, 2011). Whereas, doctor and pharmacist are consulted when in doubt or in case of more information is required (Calamusa et al., 2012, Chua and Sabki, 2011, Major and Vincze, 2010).

In Oman, a study reported that 66% of respondents visited multiple facilities on the same day and for the same health problem while 51% failed to comply with appointments of follow up to the same facility. It is advised to consult the health care professionals once the patients facing any health problems (Abdo-Rabbo et al., 2009). In Scotland, a study by Stewart et al., (2008) showed that most of the

respondents would choose to see a doctor rather than a pharmacist prescriber and some felt that their consultation with the pharmacist could have been better (Stewart et al., 2008). In Ireland, a study on the public's view of making decisions about the over-the-counter (OTC) medication showed that 51.9% of the respondents regularly took prescription medicines and 39.2% bought non-prescription medicines about once a month. Female respondents (48%) were more frequently to buy them than males (40.5%). Regarding the place of purchasing the medication, 64.6% of all respondents reported that the community pharmacy was the first place to buy a non-prescription medicine. Moreover, all respondents stated that their knowledge about the effectiveness of OTC medicines was based on previous use of medicines. In addition, around 70% of the respondents agreed and strongly agreed that people able to decide for themselves what non-prescription medicines they want, even if there is no scientific evidence for it (Hanna and Hughes, 2011).

In Malaysia, NSUM was conducted to describe the access to medicines among Malaysian people showed that 56% of the respondents choose to consult a doctor in government health services and 27% intend to consult a private doctor when facing any health problems. Only 4.7% to consult a retail pharmacist and 11% choose to self-medicate. In addition, most people are obtaining their medicines from clinics (85.9%), hospitals (75%) and community pharmacies (72.2%) (Hassali et al., 2013). In the year 2015, NSUM showed that 58.6% of the respondents preferred to consult a government doctor and 23% choose to consult private doctor. Few percent (5%) preferred to consult a retail pharmacist and 12% of respondents preferred to self-medicate. Furthermore, the most common facilities for obtaining medicines among Malaysian people were clinics (88.%), hospitals (80.3%) and community pharmacies

(76.1%) (Pharmaceutical Services Division, 2016). On the other hand, health seeking behaviour can be influenced by many factors. Another study in Malaysia regarding the health seeking behaviour among chronic patients reported that the ethnic background and the socioeconomic status of the patients influenced their behaviour for seeking health facilities. Thus, 65.8% of Malays and 76.6% of patients with low monthly income (less than RM400) were likely to obtain medicines from government health facilities. While Chinese (44.5%) and patients with high monthly income (54.3%) (RM5000 and above) were more likely to obtain medicines from private health facilities (Amal et al., 2011).

In another study was conducted in Turkey found that seeking a physician was associated with serious symptoms such as blood in the stool (94.8%), urinary tract infection (69%) and skin rash (62.4%). However, the majority of the respondents (70%) were aware of the importance of periodic medical check-up in term of early diagnosis while only 7% of them consult a physician for medical check-up without any complaints. Whereas, the self-medication was preferred by them in case of subjective symptoms such as headache, abdominal pain and dysuria. In addition, none of the respondents would consult a non-healthcare professional except pharmacist. Consulting a pharmacist was mainly used for cases of fever, cough, headache, abdominal pain and chest pain. The non-prescribed medicine was frequently requested from pharmacies was analgesics, antipyretics and medication for respiratory symptoms (Hayran et al., 2000).

Regarding the practice of self-medication, many studies have been found that the practice of self-medication is prevalent among Malaysians (Ali et al., 2010, Azhar et

al., 2013, Hassali et al., 2011). A previous study was conducted to explore the prevalence of self-medication practice among adult people attending community pharmacies in Kuala Lumpur showed that 62.7% of the participants had practiced self-medication without prescription in the past week. Participants believed that over the counter medicines are effective like as prescribed medicines by doctors. The age of participants was associated significantly with self-medication practice. All participants above 60 years of age (100%) and 85.7% of participants between 50 and 59 were found to self- medicate. The most common therapeutic classes of self-medication were cough and cold preparations (66.9%) followed by pain medication (57.6%), diarrhoea (43.9%), allergy and/or rashes (35.4%), constipation (33.4%), weight loss (26.8%) and heartburn (25.2%). Most of the participants (69.4%) would seek an advice from their doctors before purchasing any medication and 86.9% would consult a pharmacist before buying medication from the pharmacy (Hassali et al., 2011). Another study was conducted by Ali et al. (2010) on 481 female students in Malaysian university (USM) showed that the majority of students (80.9%) had practiced self-medication. Most respondents (93.1%) stored medicines in their rooms. Pertaining to medicines use, 70.7% of them reported that they stopped taking prescribed medicines without consulting their doctors. The most common reasons for self-medication were their awareness about an ailment and its treatment (58%), 14.4% save time and 8.5% mentioned that medications given by the provider was not effective. The most common symptoms were otolaryngology problems (22.5%), respiratory tract infection (19.6%), GIT diseases (18.1%), headache and fever (16.8%). The most commonly used medications were analgesics and antipyretics (30.2%), ear, nose and throat medications (10.8%), vitamin and minerals (10.5%),