KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING THE RATIONAL USE OF MEDICINES IN H DH VAIKARADHOO, MALDIVES

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A Project submitted in partial fulfillment of the requirements for the degree of Bachelors in Primary Health Care

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DECLARATION

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I hereby declare that this Project is the result of my own work, except for quotations and summaries which have been duly acknowledged.

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ABSTRACT

Irrational use of medicines is a harmful and wasteful global health problem. In order to overcome from the problem, it is very important to know the community's knowledge, attitudes and practices regarding the rational use of medicines. There was no study conducted a KAP survey regarding the rational use of medicines in anywhere of the Maldives.

The purpose of this study is to obtain the knowledge, attitude and practice regarding the rational use of medicines in HDh Vaikaradhoo. A survey-based cross-sectional study was conducted among the 104 households of Vaikaradhoo by using self-developed pretested questionnaire. The results of the study were expressed as counts and percentages. Most of the respondents were aware about the expiry dates of medicines (83.7%) and importance of compliance of medicines, same generic content of medicine is available under different names, that medicine is needed for every illness (65.4%), that costlier medicines are better than cheaper medicines (71.2%), 38.5% of respondents seek advice to take medicines after doctor consultation. 63.5% of respondents to take missed dose once they remember, 73.1% of respondents used to throw the left-over medicines, and 67.3% of the respondents dispose both expired and non-expired medicines, 48.1% of medicines that stored in households of Vaikaradhoo were stored in Cupboard/Drawer. In conclusion, although the majority of the surveyed respondents had adequate knowledge, positive attitude and practice, there are some respondents who were unaware about the rational medicines use; they need to be educated by adopting suitable interventions.

KEY WORDS: Rational use of medicines, KAP survey.

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LIST OF ABBRIVIATIONS

KAP: Knowledge, Attitude and Practice

RUM: Rational Use of Medicine

WHO: World Health Organization

SCT: Social Cognitive Theory

SLT: Social Learning Theory

OTC: Over the Counter

USSR: Union of Soviet Socialist Republics

SPSS: Statistical Package for Social Science

CHAPTER 1

INTRODUCTION

1.1 Background of the study

World Health Organization defines rational use of medicines as “patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community”. This definition was outlined in 1985 at the Conference of Experts on rational use of medicines in Nairobi (WHO, 1985). In simple terms, rational use of medicines is the use of right medicines, in a right dose, for the right duration, which is given to the right patient at the right price.

Irrational use of medicines is a major problem around the globe which includes both developed and developing countries. According to the estimates of WHO, more than half of the medicines prescribed are being distributed or sold inappropriately, and half of those patients did not take the medicines according to the way it was prescribed. Examples of irrational use of medicines include, prescribing too many drugs per patient, injections being used instead of oral formulations where oral formulations would be more appropriate, inappropriate self-medication by patients among others. Irrational use of medicines often leads to many health problems such as ineffective treatment and rise of antimicrobial resistance. It can also result in decreasing quality

of care, high mortality and morbidity, financial resource wastage by health care systems, as well as by patients (WHO, 2014).

The first thing that has to be done to correct irrational use of medicines is to measure it. Prescribing, dispensing and use of medicines by patients should be monitored regularly. This research aims to study the KAP among people of Vaikaradhoo with regards to rational use of medicine.

Background of Vaikaradhoo

Thiladhunmathee dhekunuburi vaikaradhoo or Haa Dhaal Vaikaradhoo is an island situated in the North (thiladhunmathi) of Maldives and is 268.85 km away from the capital of Maldives, Male' city. It is 1890m in length and 757m wide. The total population as of March 2014 is 1778 and there are 145 households where people live.

1.2 Problem statement

Everyone who takes medicines should receive the right medicines at right dosages and should use them for an adequate duration with proper information about the treatment that he or she is taking. Also it should be at an affordable price (Kar, Pradhan & Mohanta, 2010).

Irrational use of medicines is a harmful and wasteful global health problem. Moreover, it is very costly. Another big concern is, increasing the incidence of adverse drug events and resistance day by day, as a result of inappropriate medicine use. (Kar, Pradhan & Mohanta, 2010). WHO estimates that in primary care, less than 40% of patients who are treated at public sector and 30% of patients in the private sector are treated according to the standard treatment guidelines in developing and transitional countries. More than one third of the world's population lacks access to

essential medicines. Holloway & Dijk, 2011). 10 to 20 percent of national health budgets are spent on medicines in developed countries, while 20 to 40 percent of the national health budgets are spent on medicines in developing countries (Holloway & Dijk, 2011). Since large sums of funds are spent on medicines, irrational use of medicines is a big concern. Some consequences that occur due to inappropriate use of medicines includes, antimicrobial resistance, adverse drug reactions and medication errors, lost resources and eroded patient confidence (WHO, 2010). To improve the situation, more research or studies must be done and informational needs to be disseminated to the appropriate people including decision makers such as managers, service providers such as doctors, nurses and pharmacists, and the public in general to increase the awareness on the issue and its consequences and improve the negative practices and behaviors.

1.3 Objectives of the Study

General objective

- To obtain the knowledge, attitude and practice regarding the rational use of medicines in HDh Vaikaradhoo

Specific objectives

- To identify the prevalence of medicines used by the households of Vaikaradhoo
- To identify the channels through which households respondents are treated.
- To identify the prevalence of traditional medicines used by households

- To identify the knowledge of correct dosages of medicines that are used
- To identify the sources by which people obtain their medicines and are by whom they are treated
- To identify knowledge, attitude and behavior regarding storage, expiry dates and use of left-over medicines

1.4 Research Questions

- Do the peoples of households of Vaikaradhoo used to keep the medicines at home?
- Do the peoples in the households in Vaikaradhoo use traditional medicines? Their types and how often they use?
- From where do they take advice on treating and where do they obtain medicines?
- Where do the people store the stoked medicines at the households?
- Do the people of the households know the correct dosage regimen and the route of administration of the stocked medicines that available at the households?
- Do the people of the household are aware of the expiry dates of the medicine?
- Do they have any expired or any left-over medicines, and how do they deal with those medicines?

1.5 significance of the study

There hasn't been any study conducted in Maldives on the knowledge, attitude and practice regarding the rational use of medicine. Therefore it is very important to conduct a study to assess peoples' knowledge, their attitude and their practice regarding rational use of medicines in order to find possible solutions to this problem of public health significance.

The aim of the Maldives national medicine policy on rational use of medicines is "promoting rational use of medicines in areas of prescribing, dispensing, self-medication." (Ministry of Health, 2007). This study would help to achieve the aim of national medicine policy on rational use of medicines. Most importantly this study would be beneficial for health care workers who can create awareness about the rational use of medicines among the community. Moreover, information from this study would act as a baseline and help in the process of planning interventions and preventive strategies on irrational use of medicines across the country at different levels varying from healthcare provision to individual choices.

1.6 Scope of the Study

In light of the above-mentioned objectives, this study focuses on the people's knowledge, their attitudes and practices regarding the rational use of medicines in HDh Vaikaradhoo. The scope includes one respondent from each house from the households selected for this survey by using the sampling described in the methodology chapter of this paper. The survey was conducted in vaikaradhoo from 30th April 2014 to 4th May 2014.

1.7 Definitions of terms

Knowledge: general understanding or familiarity with a fact, place or situation.

Attitude: state of mind or way of being, a position.

Practice: observable actions of an individual in response to a stimulus.

Rational Use of Medicines: an individual receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community.

Context: the surroundings or environments that determine the meaning of an event

Left over medicines: Left-over medicines are medicines that available in a household from previous treatment.

CHAPTER 2

LITERATURE REVIEW

2.1 Country background

The Republic of Maldives is a country made up of 1192 coral islands which are scattered over 90000 square kilometers across the Indian Ocean. The country is located just across the equator and south west of the Indian peninsular with 99% of the country consisting of sea. Land area of the Maldives comprises of only 298 square kilometers. The peoples of the Maldives are widely dispersed across 26 atolls, which are administratively divided in to 20 atolls, with about 187 inhabited islands In addition, there are 107(2014) islands designated for tourist resorts and approximately 14 islands used for industrial purposes. The capital city of Maldives is Male', where approximately one third of the country's population live. One third of the islands consist of less than 500 inhabitants (Ministry of Health and Gender, 2014). According to the WHO the population of Maldives in 2012 was 338000 (WHO, 2014). The capital city of Maldives is Male', where approximately one third of the country's population live. One third of the islands consist of less than 500 inhabitants ((Ministry of Economic Development, 2014). Due to the location of the islands and low population, it is very difficult to provide the services according to the needs of the people. Though there is at least one health facility in every inhabited island, there is

no pharmacy in every inhabited island. Therefore, in some situations, people have to buy their medicines from nearby islands where the needed medicines are available.

2.2 Medicine

The word “medicine” is defined as “the science or practice of the diagnosis, treatment, and prevention of disease (in technical use often taken to exclude surgery)” (Oxford University Press, 2014). Or “Medications, drugs, substances used to treat and cure diseases, and to promote health. This collection of articles focuses on the science of healing, its history from prehistoric times until today, and the medications and healing methods used” (Oxford University Press, 2014).

Medicines have been practiced by humans over million years in many different ways. It is very important to know the history of medicine, in order to know how modern medicine got to where it is now.

2.3 Rational Use of Medicine

The Alma-Ata declaration, during the International conference on Primary Health Care, which was held in Alma-Ata, USSR, from 6-12 September 1978, agreed that health is a fundamental human right and the attainment of the highest possible level of health is an important worldwide social goal (WHO, 1978) In Nairobi in 1985, the conference of experts on rational use of medicines which was organized by WHO stated the definition of rational use of medicines as patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community.

Irrational uses of medicines are the inappropriate use or misuse of medicines. The incidents of misuse of medicines are increasing day by day due to the accessibility of modern medicines. Some of the most common types of irrational medicine uses include; use of too many medicines per patient, over prescribing, use of unnecessary expensive medicines and self-medication among others (Khor, 2005)

Some problems that may arise with irrational use of medicines includes: overuse of injections and medicine which is a consequences of over consumption and over prescribing. Prescription and use of painkillers, injections, antidiarrheal, antimicrobials and cough syrups is a big concern. Injections are particularly powerful and will act fast than other medicines like syrups and tablets, multi-medicine use are prescription and use of often more medicines than needed. Multi-medicine use is very common among consumers who used to purchase their medicines over the counter (OTC). Incorrect medicine use includes using of wrong medicines instead of correct medicine for a specific health conditions such as for using of antibiotics and antidiarrheal medicines for childhood diarrhea, use of medicines with incorrect dosage, which mostly occurs while using antimicrobials, antimalarial and ORS. Mostly incorrect medicine use occurs due to wrong use of medicine by consumer as well as inappropriate medicine prescriptions (Singh & Thawani, 2013).

Main reasons for irrational use of medicines occurs due to, lack of information, faulty, inadequate education and training of medical professionals, poor communication between patients and health professionals, unavailability of diagnostic facilities, due to the patients demand, due to medicine promotion and due to defective medicine supply system and ineffective medicine regulation (Singh & Thawani, 2013).

Most of the countries in the world especially in low and mid income countries do not have regular facilities to provide all needed information about medicines and their uses such as up to date and unbiased information's on available medicines. Most of the medical practitioners seek the medicine information from medical representatives. There are differences in interpretation of the data related indications and safety of medications between medicine regulatory authorities and pharmaceutical concerns. Lack of proper training medical professionals on areas like writing proper prescriptions during the training process, over dependency on diagnostic aids, rather than only clinical diagnosis development is on the increase. Health care professionals and medical practitioners not explaining the basic information of medicine uses and giving less time to patients leads to increase irrational medicine uses. Instead of explaining about the safe use of medicines, only prescription is delivered to the patients. Most of the time prescription does not contain adequate information about the medicines. One of the most important steps towards the rational medicine use is correct diagnosis of the patient for an illness or disease. Doctors who work at remote areas face a lot of difficulties in confirming the exact diagnosis due to unavailability of diagnostic resources. This often leads to irrational medicine use. For the satisfaction of patients and due to the patients demand for the quick relief from illness, some medical practitioners used to prescribe medicine for each and every complaint from the patient which leads to symptomatic treatment. Such action from clinicians leads to increase in tendency of irrational medicine use. Lack of organized medicine regulatory authority and availability of large number of medicines at the market is also another reason for irrational uses of medicines. Conducting promotional programs on medicines by pharmaceutical industries also influences the medicines prescription (Singh & Thawani, 2013; Khor, 2005).

There are several consequences of irrational medicine use which include; adverse effects and sometimes lethal effects to the person's health due to irrational use, as an example, due to misuse of antimicrobials and inappropriate medicine use in self-medication, limited efficacy such as under-therapeutic dosage of medicines like antimicrobials, leprosy or TB medicines, antimicrobial resistance due to overuse of antimicrobials and use of antimicrobials under therapeutic dosage, dependence of medicines due to frequent use of painkillers and Sedatives, risk of infections as result of improper injections use and wastage of resources which leads to reduction of availability of vital medicines and increased cost (Singh & Thawani, 2013; Khor, 2005).

2.4 Previous studies

There are many different studies that have been conducted to identify the knowledge, attitude and practice regarding rational use of medicine in different countries across the world. Some studies have been conducted for different target groups including students, teachers, community etc.

Knowledge about medicines use is one of the most important factors in the rational use of medicines. A household survey was conducted in Oman between 2008 and 2009 named "Household Survey on Medicine Use in Oman" by Directorate of Rational Use of Medicines, Ministry of Health, Muscat, and Sultanate of Oman in collaboration with WHO/EMRO JPRM. The report of the survey suggests that a cross-sectional study was done to identify the medicine use by using structured interview questionnaire. 1050 households were surveyed from 12 urban and rural villages in 6 wards located in 4 governorates and regions in the Sultanate. The results of the survey showed that little more than half of the parents in surveyed households had minimum of basic education, which was 50.19% of surveyed parents (Directorate

of Rational Use of Medicines, 2009). Similarly, a study was conducted to assess the Saudi school students' knowledge, attitude and practice toward medicines in 2013. The study was carried out among 15 to 20 years old students who were attending the tertiary school in Taif city of Saudi Arabia. 1022 students had participated in the study. 15.4% of students said that they know the medicine uses (Elddalo, Yousif, Suntha, & Abdallah, 2013). Another study conducted in Nagpur, India to evaluate the knowledge, attitude and behavior about the rational use of medicines in second year medical students. The study included 153 students. The results showed that almost all the students were aware of general medicines (Sontakke, Budania, & Paranjape, 2013)

. Comparatively studies have shown completely different findings in rural areas of India. A KAP survey conducted in rural areas of Gujarat, India to assess knowledge, attitude and practice of general public toward the usage of medicines showed that most of the Gujarat's community was unaware of medicine use (Shah, Parmar, Ramkishan, & Mehta, 2011). In light of above mentioned study results on the awareness of medicine use, social and demographic factors plays an important role in the rational use of medicines. The level of satisfactory knowledge about the medicine uses increased with increasing educational level.

Understanding the prevalence of traditional medicines used by households is also another important thing in identifying the knowledge, attitude and practice of a community regarding the rational use of medicine. A household survey conducted in Oman suggests that more than half of the surveyed household respondents were using traditional remedy in their houses, of which 49.78% comprised of herbal medicines (Directorate of Rational Use of Medicines, 2009).

Identifying the availability of medicines in home and their uses, from whom the respondents seek advice on using medicines, reasons for choosing the source of treatment, place of storage, source of obtain, medicines are with adequate labels, how people deal with missed dose, what do they do once they start feeling well, ways of disposal, whether they check expiry dates and whether the medicines available at households are expired or not are some of the areas that need to be studied to identify the respondents knowledge, attitude and practice regarding the rational use of medicines.

Among 1050 surveyed households in Oman, More than 95% of the households used to keep the medicines at homes (Directorate of Rational Use of Medicines, 2009). A household survey on rational use of medicines in India was held in Chittoor district of Andhra Pradesh, India which included 500 households. The results of the survey indicated that, 74.67% of household had medicines at homes (Kumar et al., 2013). The results of the Oman survey also stated that most common medicines that were found in the households were medicines that were used for musculoskeletal/joint problems, respiratory diseases and cardiovascular diseases. Antibiotics were found in 45.83% of surveyed households (Directorate of Rational Use of Medicines, 2009) Most of the medicines that found in the households of Oman were advised to take by the physicians, which consists 86.06% (Directorate of Rational Use of Medicines, 2009). Similarly, 79.6% students of the tertiary school in Taif city, Saudi Arabia use medicines only after consulting a physician. They also said that they seek the information about medicines mainly from physicians and community pharmacists (Elddalo, Yousif, Suntha, & Abdallah, 2013). Comparatively, approximately 36% of respondents in the study conducted in Chittoor district of Andhra Pradesh said that they are self-medicated (Kumar et al., 2013).

The main reasons for the respondents from surveyed households of Oman, for choosing their source of treatment and ways from which they obtained their medicines are according to the type and severity of the illness or symptoms, the beliefs about the medicine and due to the advice from others (Directorate of Rational Use of Medicines, 2009). While, in rural areas of Gujarat, India, the results of the survey showed that 7% of the respondents were using nonprescription medicines and they were exchanging those medicines to their family members (Shah, Parmar, Ramkishan, & Mehta, 2011). Another KAP study that was conducted for rational use of medicines in second year medical students in Nagpur, India, stated that over 93% of the students responded that doctor's advice was the most important thing that influenced them in medicine purchase (Sontakke, Budania, & Paranjape, 2013).

Most of the people of the households in India's Chittoor district of Andhra Pradesh, said that they used to store their medicine in the Cupboard (27.27%). 16.67% of the respondents said that they store their medicines in a Drawer; about 3% says that they stored in Cover and 1.52% said they stored it in their refrigerator (Kumar et al., 2013). Moreover, 33% of the respondents from India's rural areas of Gujarat stated that they are aware of the storage of medicines (Shah, Parmar, Ramkishan, & Mehta, 2011). Most common places where the respondents of the households of Oman stored were in refrigerators, Cupboard and in shelf (Directorate of Rational Use of Medicines, 2009). 30.65% of the medicines were stored in the refrigerators, 23.25% of medicines were stored in Cupboard and percentage of medicines that stored in shelf was 12.52% (Directorate of Rational Use of Medicines, 2009).

Only 7.95% of medicines were with adequate labels from all the medicines that found in the surveyed households of Oman. But, 73% of medicines that were found in the survey that was conducted in Chittoor district of Andhra Pradesh were with adequate

label (Kumar et al., 2013). About one third of the medicines that were found in the households of Oman were not used (Directorate of Rational Use of Medicines, 2009). Similarly 28.57% of medicines that found in households of Chittoor district of Andhra Pradesh, India were not at all used. And around 6% of stored medicines that were found in the surveyed households were in bad condition and 1.56% of medicines that were found in households were expired (Kumar et al., 2013).

Moreover, 36% of the respondents in rural areas of Gujarat, India, were aware about the expiry date of the medicines (Shah, Parmar, Ramkishan, & Mehta, 2011). More than 90% of the respondents of households in India's Chittoor district of Andhra Pradesh stated that they used to check the expiry dates of medicines before they use it (Kumar et al., 2013).. Similarly, More than 80% of the respondents in Oman survey mentioned that they check the expiry dates of medicines before they use it (Directorate of Rational Use of Medicines, 2009). While, 41.7 % of the participants who participated in a study that conducted in Nigeria could tell correctly what rational use is all about (Okoh, 2012)

Out of 500 surveyed households in India's Chittoor district of Andhra Pradesh, 8% of the households keep the left over medicines for future use (Kumar et al., 2013). Very few households in Oman returned the left over medicines to the pharmacy (Directorate of Rational Use of Medicines, 2009)

Approximately 58% of the medical students of Nagpur said that medicines will not be needed for every illness. 83% of the students said that they used to purchase all the medicines in the prescription (Sontakke, Budania, & Paranjape, 2013). More than 88% of the respondents of Chittoor district of Andhra Pradesh, India had correct knowledge about the medicines that were found in their households (Kumar et al.,

2013). Similarly, 65.86% of respondents of Oman had the knowledge about the correct dosage of medicines that were found in their homes (Directorate of Rational Use of Medicines, 2009).

The overall results of the survey that were conducted in Oman suggest the irrational use of medicines among the sampled population. Some inappropriate use of medicines include, obtaining medicines and treatment from informal sources, self-medication using traditional remedies and modern pharmaceuticals, large quantities of expired medicines being found and improper labeling of medicines. These may be contributing factors for wastage of medicines, unsafe and ineffective treatment (Directorate of Rational Use of Medicines, 2009). Similarly, the overall results of study that was conducted among Saudi students indicated that they have poor knowledge, negative attitudes and misconception about medicines use which may cause them health related problems (Elddalo, Yousif, Suntha, & Abdallah, 2013). The survey that was held in Chittoor district also showed that there was an inappropriate use of medicines in the community (Kumar et al., 2013). The outcome of the study that conducted in India's rural areas of Gujarat indicated that the surveyed community was unaware about the RUM. (Shah, Parmar, Ramkishan, & Mehta, 2011). Although the majority of the second year medical students of Government Medical College, Nagpur, India were aware about the issues that addressed them in the survey, the students should be aware about all the aspects about RUM because they are future prescribers of medicines (Sontakke, Budania, & Paranjape, 2013).

2.5 Theoretical framework

Lots of theories have been proposed over the years in order to explain the developmental changes that people undergo during their lives. Proposed theories have been differing according to the human nature they adopt and according to the basic causes and mechanisms of human motivation and behavior.

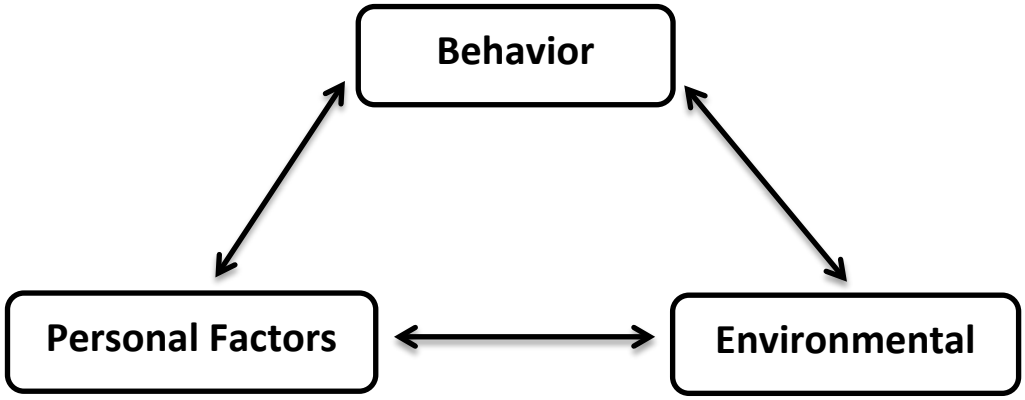
The theoretical framework of this study is based upon the Social Cognitive theory (SCT). SCT is a psychological model of behavior, which was first identified as Social Learning Theory (SLT) in 1960s by Albert Bandura. In 1986, SLT developed into SCT and suggests that the process of learning occurs in a social context along with active and interrelationship between environment, behavior and person (Boston University School of Public Health., 2013). SCT has been applied in various areas of human functioning such as career choice, athletics, and mental and physical health and organizational behavior (Denler, Wolters & Benzon, 2014). The theoretical framework for both Constructivism and Cooperative Learning are also provided by SCT (Boston University School of Public Health., 2013).

The SCT suggests that human functioning can be explained by three way interaction between personal, behavioral and environmental factors. Personal factors include the individual motivational, drives, instincts and traits. An environmental factor signifies the situational effects and environment where behavior is performed. In SCT model of reciprocal causation, cognition, behavior, environmental influences and other personal factors all operate as interacting determinants that influence each other bidirectional (Perry, C. L 1990)

There are variables that may intervene in the process of behavior change, such as, self-efficacy, self-control, outcome expectations, reinforcements, emotional coping

and observation learning. Self-efficacy is a judgment of person's ability to perform certain behavior, self-control is the ability to control the behavior of an individual by their own. Outcome expectations are a judgment of which the likely consequences a behavior will likely produce. Importance expectancies may also help to drive behavior. Reinforcements are a process whereby behavior desirable consequences come to be repeated. Emotional coping is the ability of a person to cope with the emotional stimuli. Observational Learning is the learning or copying of behaviors by observing actions and outcomes of others' behavior (Bandura, A. 1986). Figure 2.1 below illustrates Social Cognitive Theory Model.

Figure 2.1: Social Cognitive Theory Model



CHAPTER 3

METHODOLOGY

This chapter mainly focuses on five parts that include the process of research design, sampling, instrumentation, data collection procedures and framework for data analysis.

3.1 Research Design

A cross sectional study was conducted during 21st April 2014 to 30th April 2014, based on the methods in WHO manual on "How to investigate the use of medicines by consumers", to identify the knowledge, attitude and practice regarding the rational use of medicines in HDh Vaikaradhoo

A KAP survey means Knowledge, Attitude and Practice survey. A KAP study is a descriptive study that is conducted on a specific population to obtain information on what is known, believed and done in relation to a specific topic. Data in KAP surveys are mostly collected orally by an interviewer using a structured, standardized questionnaire. The collected data are then analyzed either qualitatively or quantitatively according to the design and objectives of the study (WHO, 2008).

3.2 Population and Sample

The population for this study comprised of all the inhabited households of HDh Vaikaradhoo. The study was conducted among the 104 households of vaikaradhoo.

One respondent from each house was interviewed from the surveyed 104 households of Vaikaradhoo.

3.2.1 Exclusion criteria

Foreigners, people with disabilities and peoples who aged under 18 years of age was were excluded in the survey.

3.3 Instrumentation

The instrument that used for data collection was written interview questionnaire in a pre-defined order for interviewing the respondents. The questionnaire was designed in such a way that it can obtain information about various issues concerned with RUM.

To get more reliable information on the actual behaviors of the respondents, the interview was accompanied with direct structured observations in addition to verbal interview. Interviewers asked the respondents to show the medicines they have at home so that interviewers can see the medicines that are available at the households, and whether there are left over medicines and their knowledge about the correct dosage.

The questionnaire was short and simple with use of standard terminology. The questionnaire was first prepared in English language and it was translated to Dhivehi. The questionnaire was pre-tested in three households before the start of main study to see whether respondents can understand the questions easily and according to the

results of the pretest appropriate modifications were brought to the questionnaire. The data that was collected from the pretest was not included in the survey sample. Details of the interview questionnaire in English are illustrated in APPENDIX A and Dhivehi interview questionnaire is illustrated in APPENDIX B.

3.4 Data Collection Procedures

The data collection was carried out with the help of five trained interviewers. One respondent from each household was interviewed; the age groups of the interviewed people were 18 years and above. Data collectors were informed to visit maximum of 5 houses per day to assure the quality of collected data. The results and the observations of the interview were recorded instantly to the questionnaire.

Respondents were informed and assured of confidentiality. Small briefing was conducted before starting the data collection and at the end of each day of data collection. All the completed questionnaires were checked at the end of each day of data collection.

3.4.1 Training the Data Collectors

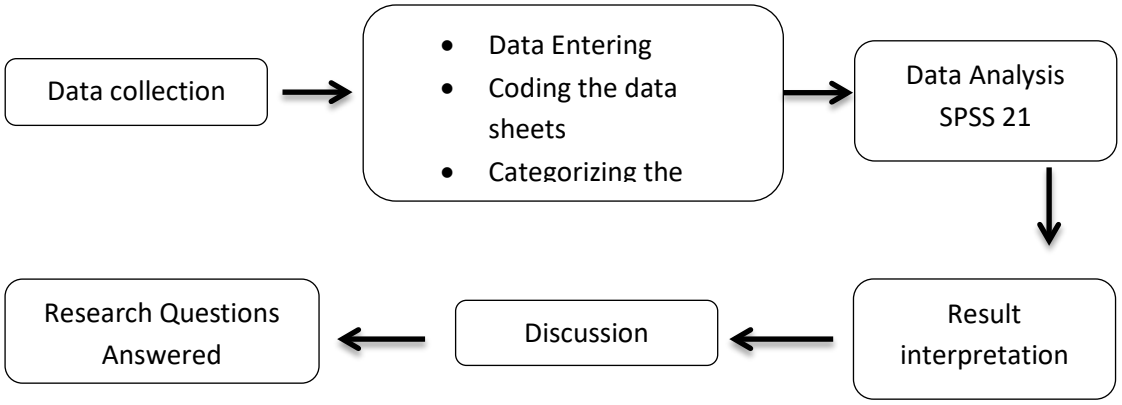
Total of five members were selected and used for data collecting process. All five members received training in the standard survey methodology and data collection. The training was aimed to inform the procedure for approaching the households and data collectors to understand the contents of the questionnaire.

3.5 Framework for data analysis

Once the data was collected, all the collected data was entered into the Statistical Package for Social Science (SPSS Version 21, SPSS Inc.) for analysis. The data was

analyzed by SPSS and presented by means of tables and diagrams. Figure 3.1 below shows analytical framework.

Figure 3.1: Analytical frame work



3.6 Ethical Consideration

Respondents were informed that they were free to accept or refuse to participate at any time of the study. They were assured the privacy and information provided will be kept confidential. Also respondents were informed that data will be reported anonymously. In addition, written consent letter was provided. Consent letter of English version is attached in APPENDIX C Consent letter of Dhivehi version is attached in APPENDIX D.

CHAPTER 4

DATA ANALYSIS AND RESULTS

Socio demographic characteristics of surveyed households

Total of one hundred and four (104) households respondents were included in the survey from a total of one hundred and forty five (145) households of Vaikaradhoo where currently people live. The response rate of the survey was 100%. Details of socio demographic characteristics of the surveyed household's respondents are given in Table 4.1. 26% (27) of the respondents who participated in the survey were males and 74% (77) of respondents were female. The mean age of the respondents was 43.9 years (SD 14.33). 93.3% of interviewed respondents were married, 4.8 were single and 1.9% of respondents were divorced. More than half (57.7%) of the respondents had basic education, 18.3% had primary and 16.7% of the respondents had secondary education, while 7.7% of the respondents had completed college or university education respectively. Slightly less than half (48.1%) of the respondents were self-employed. 22.1% of respondents were government employees and just 5.8% of respondents were private employees. Little less than one forth (24.0%) of the respondents were unemployed and most of them were females. 29.5% of the respondents stated that their monthly income is less than 2000 rufiyaa (1$=15.42MVR), 19% said that they get monthly income between 2000 to 3999, 22.9% stated that the monthly income of 4000 to 5999 and percentage of the respondents who get the monthly income of more than 6000 were 7.6%. 22.0% stated

that they did not get any monthly income and almost all of them were females. Among 10.6% of the surveyed households there was at least one member working in health sector. 3 to 6 person usually lives in a household in more than half (54.8%) of the surveyed households. More than 6 person lives per household were 26% and there were 19.2% of households where less 3 person lives.

Table 4.1: Socio demographic characteristics

Variables **Socio demographic characteristics**	**Values** **n=104**
Gender	
Male	26%
Female	74%
Age (mean age)	43.9 years
Marital status	
Married	93.3%
Single	4.8%
Divorced	1.9%
Education level	
Basic	57.7%
Primary	18.3%
Secondary	16.3%
College/University	7.7%
Occupation	
Private job	5.8%
Government job	22.1%
Unemployed	24.0%
Self employed	48.1%
Income in MRF	
Less than 2000	29.5%
2000 to 3999	19%
4000 to 5999	22.9%
6000 or more	7.6%
Did not get any income	21.0%

Table 4.1, Continued	
Anyone from household working in health sector	
Yes	10.6%
No	89.4%
Number people live in household	
Less than 3	19.2%
3 to 6	54.8%
More than 6	26%

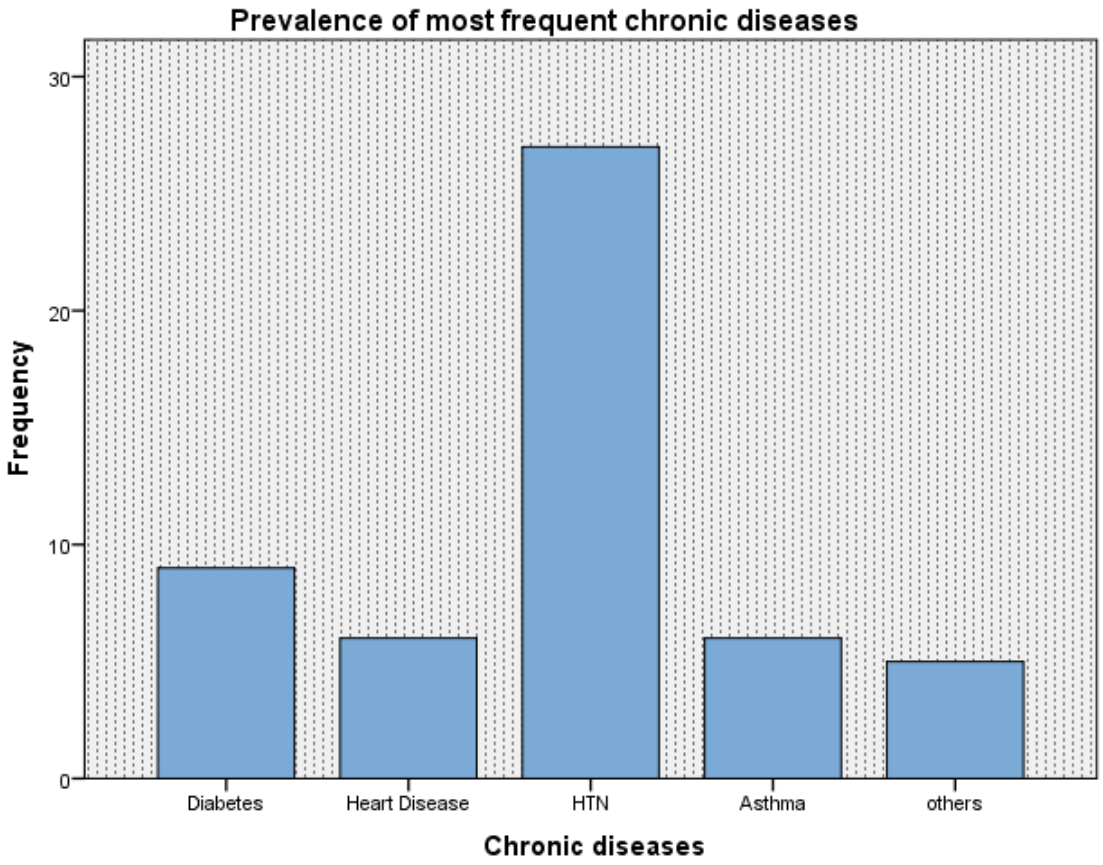
Chronic conditions in the surveyed households

Regarding to prevalence of the chronic conditions of the surveyed households of Vaikaradhoo, there were 49% of households with at least one member suffering from chronic disease. Some households reported more than one chronic disease which present in one or more members. The maximum number of chronic disease that reported during the survey in one household was 3 diseases. Hypertension was the most frequent chronic disease that reported. HTN consists the 49.1% of chronic diseases that reported during the survey. Diabetes comes second with 18.9%, heart disease and asthma consists 11.3% other chronic diseases consist 9.4%. More details on the common chronic diseases in surveyed households of Vaikardhoo are present shown in Table 4.2 and Figure 4.1.

Table 4.2: Prevalence of most frequent chronic diseases reported in surveyed households of Vaikaradhoo

Chronic Disease	Percentage
Diabetes	18.9%
Heart Disease	11.3%
Hypertension (HTN)	49.1%
Asthma	11.3%
Other chronic diseases	9.4%

Figure 4.1: Prevalence of most frequent chronic diseases reported in surveyed households of Vaikaradhoo



Traditional remedies used by households

Traditional remedies were used in 63.5% of surveyed households of Vaikaradhooo. From the household which uses the traditional medicines, only 10.6% of the respondents stated that they use traditional medicines usually, while 13.6% respondents said that they use traditional medicines sometimes and majority (75.8%) of the household's respondents answered with very less. Details on the use of traditional remedies in surveyed households of Vaikaradhoo are illustrated on Table 4.3.

Table 4.3: Treatment options with traditional remedy in surveyed households of Vaikaradhoo

Households	**Answer**	**Percentage**
using traditional remedy	Yes	63.5%
	No	36.5%
Frequency of using traditional remedy	Usually	10.6%
	Sometimes	13.6%
	Very less	75.8%

Medicines used at households

Medicines were available at almost all (93.3%) of the surveyed households of Vaikaradhoo. Table 4.4 below shows the details on the availability of medicines at the surveyed households.

Table 4.4: Availability of medicines at the surveyed households

Households	Answer	Percentage
Medicines are available	Yes	93.3%
	No	6.7%

Respondent's knowledge about the medicine uses.

83.7% of the respondents from surveyed households stated that they were aware about the expiry dates of the medicines. Similarly majority (82.7%) of household respondents were aware about the importance of compliance of medicines. While 16.3% respondents answered that they were not aware of the expiry dates of the medicines and 17.3% of the respondents said that they were not aware about the importance of compliance of medicines. Furthermore, 62.5% of surveyed household respondents of Vaikaradhoo answered that they were aware about the places that medicines should be stored and 66.3% of respondents were aware that same generic content of medicine is available under different names, while 37.5% of the respondent

stated that they were not aware about the places that medicines should be stored and approximately one third (33.7%) of the respondents were not aware that same generic content of medicine is available under different names Table 4.5 illustrates more details on the surveyed household's respondent's knowledge about the medicine use.

Table 4.5: Respondents Knowledge about the Medicine uses

Respondents	Answer	Percentage
Aware about the expiry dates of medicines	Yes	83.7%
	No	16.3%
Aware about the compliance of medicines	Yes	82.7%
	No	17.3%
Aware about the places where medicines should be stored	Yes	62.5%
	No	37.5%
Were aware that same generic content of medicine is available under different names	Yes	66.3
	No	33.7

Respondent's attitude about the medicine use

34.6% of respondents of surveyed households believe that medicines is needed for every illness, while most (65.4%) of the respondents do not believe that medicine is needed for every illness. Similarly majority (71.2%) of household's respondents do not believe that costlier medicines are better than cheaper medicines and 28.8% stated that they believe costlier medicines are better than cheaper medicines. Moreover, approximately 82.7% do not believe that increase in number of medicines in a prescription will be better & earlier will be the relief while respondents who answered that they believe that increase in number of medicines in a prescription will be better & earlier will be the relief are low (17.3%). Table 4.6 shown below gives more details on the respondent's knowledge about the medicine uses.

Table 4.6: surveyed household respondents attitudes about medicine use.

Respondents	Percentage
Believe medicine is needed for every illness	34.6%
Do not believe medicine is needed for every illness	65.4%
Believe costlier medicines are better than cheaper medicines	28.8%
Do not believe costlier medicines are better than cheaper medicines	71.2%
Believe that increase in number of medicines in a prescription will be better & earlier will be the relief	17.3%
Do not believe that increase in number of medicines in a prescription will be better & earlier will be the relief	82.7%

Respondents practice on medicine use

38.5% of surveyed households' respondents of Vaikardhoo stated that they seek advice to take medicines after doctor consultation. More than one third (34.6%) of the surveyed respondents answered that they used to take medicines from the prescriptions that receives from the consultation of family or friends and 26.9% of respondents said that they were self-medicated. Table 4.7 below illustrates more details on peoples from whom households sought medicines

Table 4.7: Peoples from whom household's respondents sought medicines

Respondents	**Percentages**
use medicines after seeking Advice from doctor	38.5%
Family or friends	34.6%
Self-medication	26.9%

More than half (63.5%) of the surveyed households respondents of Vaikaradhoo mentioned that they used to take missed dose once they remember. One fourth (25%)

of the respondents mentioned that they postpone taking the missed dose with the next dose and 11.5% respondents answered that they used to continue the treatment without substitution. More details on the respondents practice on missed dose are shown in Table 4.8 below.

Table 4.8: Respondents behavior on missed dose

Respondents	**Percentages**
Take the missed dose once they remember Postpone taking it with the next dose Continue the treatment without substitution	63.5% 25% 11.5%

Majority (91.4%) of the respondents of the surveyed households mentioned that they always check expiry date before use of medicine and only 3.8% said they sometimes check expiry date before use of medicine, while 4.8% respondents mentioned that they do not check expiry date before use of medicine. More detailed information about the expiry dates of medicines are show in the Table 4.9 below.

Table 4.9: information about the expiry dates of medicines

Respondents	**Percentages**
Mentioned that they always check expiry date before use of medicine	91.4%
Mentioned that they do not check expiry date before use of medicine	4.8%
Mentioned that they sometimes check expiry date before use of medicine	3.8%

Left-over or unused medicines are medicines that are available from previous treatment or from previous prescriptions. Unused medicines were found from almost

all the surveyed households. 73.1% of respondents from the surveyed households used to throw the left-over or unused medicines instead of keep keeping for further uses. In 11.5% households, they keep the left over medicines or unused for future uses. While 11.5% households said that they return the left-over or unused medicines to the pharmacy. More detailed information on left-over or unused medicines is illustrated in the Table 4.10 shown below.

Table 4.10: detailed information on left-over or unused medicines

Respondents	**Percentages**
Throw the left-over or unused medicines	73.1%
Returns the left-over medicines or unused to the pharmacy	11.5%
Keep the left-over or unused medicines	15.4%

Most (32.7%) of the respondents answered that they dispose only expired medicines while majority (67.3%) of the respondents from surveyed households mentioned that they used to dispose both expired and non-expired medicines such as left-over medicines from previous treatments. Table 4.11 shown below illustrates more details on the medicine disposal.

Table 4.11: Information on medicine disposes.

Respondents	**Percentages**
Dispose expired medicines only	32.7%
Both expired and non-expired medicines	67.3%

More than (67.3) half of the surveyed households respondents from Vaikaradhoo said that they continue medicines intake as prescribed even though they feel well, in 26.9% households they stop medicine intake after feeling well. While the percentage

of respondents who stop medicine intake and consults to doctor are 2.9% and percentage for respondents who consult to doctor after feeling well are also 2.9%. Table 4.12 below illustrates details on the medicine use when they feel well.

Table 4.12: Information's on medicine intake

Respondents	Percentages
Stop medicine intake and then consult doctor after feeling well	2.9%
Consult a doctor after feeling well	2.9%
Continue medicine intake as prescribed even after feeling well	67.3%
Stop medicine intake, after feeling well	26.9%

Most common place where medicine stored in households of Vaikaradhoo was in Cupboard/Drawer, where 48.1% of surveyed households stored their medicines. In 26.9% households, medicines were stored in medicine box. While in 6.7% of households medicines were stored in refrigerator and 18.3% households, medicines were stored in some other places such as in bags, on the tables' etc. Table 4.13 shown below illustrates more information on the medicine storage

Table 4.13: information's on medicine storage in households.

Respondents	Percentages
Used to store medicines in medicine's Box	26.9%
Used to store medicines in refrigerator	6.7%
Used to store medicines in cupboard/Drawer	48.1%
Used to store medicines in other places	18.3%

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Summary of main findings

The results showed that more than half (57.7%) of respondents from the surveyed households of Vaikaradhoo had a least basic education. Only 10.6% of households have at least one member working in health sector.

In 49% of households, there was least one member who was suffering from chronic diseases. Hypertension was the most frequent chronic disease that was reported, which consists of 49.1% of chronic diseases that was reported during the survey. The results showed that traditional remedies were used in 63.5% of households. Medicines were available at almost all (93.3%) of the surveyed households of Vaikaradhoo.

Majority (83.7%) of respondents from surveyed households had knowledge of the expiry dates of medicines. Moreover, 82.7% of the respondents had adequate knowledge about the importance of compliance of medicines. Furthermore, most (62.5%) of the respondents from surveyed household had knowledge about the places that medicines should be stored and 66.3% of respondents were aware that same generic content of medicine is available under different names. More than half

(65.4%) of the households respondents do not believe that medicine is needed for every illness. Similarly 71.2% of respondents believe that costlier medicines are better than cheaper medicines. Moreover, majority (82.7%) of respondents does not believe that increase in number of medicines in a prescription will be better and earlier will be the relief.

The results showed that 38.5% of surveyed households' respondents of Vaikaradhoo seek advice to take medicines after doctor consultation and 63.5% of respondents to take missed dose once they remember. Furthermore, majority (73.1%) of respondents used to throw the left-over or unused medicines instead of keep keeping for further uses. While, 67.3% of the respondents from surveyed households used to dispose both expired and non-expired medicines such as left-over medicines from their previous treatments. The same amount (67.3%) Of respondents said that they continue medicines intake as prescribed even though they feel well. 48.1% of medicines that stored in households of Vaikaradhoo were stored in Cupboard/Drawer.

5.2 Discussion

Studies that have been carried out in the communities plays very important role in the process of planning, development and implementation of medicine policies and interventions. These studies enable researchers to understand the community's knowledge attitude and practice on medicine use and medicine related aspects from the respondents view.

The current study attempted to provide data on the knowledge, attitude and practice regarding rational use of medicines among the households of Vaikaradhoo. The majority of the surveyed household's respondents of Vaikaradhoo were aware about

most of the issues that addressed in the survey questionnaire of this survey, which seems to be a positive finding from the survey.

The study result was interpreted in relation to different background characteristics. Information that collected on background characteristics includes age of respondents, educational level and households with one or more family member or relative working in the health sector among others.

Information about the household's morbidity, especially the chronic diseases was collected in this survey. Respondents were asked whether there was any one in the households with chronic disease and if there was a member with one or more chronic disease respondents were asked to name the disease type. 49% of households were reported with presence of at least one member suffering from chronic disease. The result of this study was quite similar to the results of the previous study that was conducted in Oman where there were 44.39% of households with at least one member with chronic disease (Directorate of Rational Use of Medicines, 2009). 34.67% of households were reported the presence of at least one chronic disease from surveyed households of Andhra Pradesh, India (Kumar et al., 2013). Hypertension was the most frequent chronic disease that was reported during the survey followed by diabetes, cancer and heart diseases. Presence of chronic diseases is linked to the increase in non-communicable diseases globally and in the Maldives. Such diseases lead to increase in the need for and use of medicines, which is a significant public health challenge across most parts of the world.

The survey collected information on modern medicines as well as traditional medicines. Traditional medicines were used in more than half (63.5%) of the surveyed households of Vaikaradhoo. 75.8% household's respondents from households reported that they use traditional medicines very less. Treatments using traditional

medicines are common in some other countries too. The household survey from Oman suggested that traditional medicines were being used in more than half (52.80%) of the households (Directorate of Rational Use of Medicines, 2009). While, the results of the Andhra Pradesh study differed from this one, with the majority (82.67%) of the surveyed respondents saying that they do not use traditional medicines (Kumar et al., 2013). Traditional healers or traditional health care providers with formal medical education can play an important role in changing the community's knowledge, attitude and practice on using traditional medicines with strict regulations from government and health authorities in enforcing those regulations.

Medicines were available in 93.3% of the surveyed households of Vaikaradhoo. The result of this survey on availability of medicines at home was also very much similar to the previous studies that were conducted in Oman and in Andhra Pradesh of India. Oman survey showed that medicines were available in 95% of the surveyed households (Directorate of Rational Use of Medicines, 2009). Similarly, medicines were available at 74.67% of the surveyed households India's Andhra Pradesh (Kumar et al., 2013). The main reasons for keeping medicines at home might be due to the unavailability of needed medicines from the only pharmacy that is located in Vaikaradhoo. Therefore, it is important to increase availability and accessibility of needed medicines from island pharmacy in order to increase rational use of medicines.

Regarding the knowledge of the respondents on rational use of medicines, it was significant finding that majority of the respondents seemed to have adequate knowledge on medicine uses such as most (83.7%) of the respondents from surveyed households were aware about the expiry dates of the medicines. Some previous

studies that conducted in some coutries favor this finding (Directorate of Rational Use of Medicines, 2009; Kumar et al., 2013; Elddalo, Yousif, Suntha, & Abdallah, 2013; Shah, Parmar, Ramkishan, & Mehta, 2011; Sontakke, Budania, & Paranjape, 2013). However, this was different in the Andhra Pradesh study. 64% of the respondents in rural areas of Gujarat were not aware about the expiry date of the medicines (Shah, Parmar, Ramkishan, & Mehta, 2011). 82.7% of household respondents from the households of Vaikaradhoo were aware about the importance of compliance of medicines. Similarly more than half (62.5%) of the respondents from of surveyed households of vaikaradhoo were aware about the places that medicines should be stored and results showed that 66.3% of respondents were aware that same generic content of medicine is available under different names. Similar results were obtained from a previous study that conducted in India's Nagpur (Sontakke, Budania, & Paranjape, 2013). And the results that obtained from a study that conducted in Saudi Arabia was different, as 38.9% of participants were aware that same medicines are available under different brand names (Elddalo, Yousif, Suntha, & Abdallah, 2013). It was found that majority of the respondents of Chittoor district of Andhra Pradesh, India had correct knowledge about the medicines that found in their households (Kumar et al., 2013). Although majority of the respondents have the knowledge of the medicine uses, there are other respondents who does not have adequate knowledge on rational use of medicines though its few, they need to be educated on the rational uses of medicines.

Regarding the respondents attitudes on rational use of medicines, it was encouraging to know that majority of respondents from surveyed households have positive attitudes on rational uses of medicines. This is indicated by the majority (65.4%) of the respondents from surveyed households of Vaikaradhoo who do not believe that

medicine is needed for each and every illness. Similarly 71.2% of household's respondents do not believe that costlier medicines are better than cheaper medicines. While most (82.7%) of the respondents do not believe that increase in number of medicines in a prescription will be better & earlier will be the relief from illness and 71.2% of the respondents do not believe that costlier medicines are better than cheaper medicines. These results are similar to the results that were obtained from a previous study that was conducted in India's Nagpur state ((Sontakke, Budania, & Paranjape, 2013).

As shown in Table 4.7, more than half (61.5%) of respondents do not seek advice from health care professional before taking medicines. The prevalence of self-medication was common among the respondents of surveyed households. These results were similar to some previous study results (Directorate of Rational Use of Medicines, 2009; Kumar et al., 2013; Elddalo, Yousif, Suntha, & Abdallah, 2013; (Sontakke, Budania, & Paranjape, 2013). Reasons for choosing other sources instead of doctor consultation might be due to having minor symptoms, he/she might have experienced similar situations before and might be familiar with the required treatment, due to their belief about the medicine, the type of illness and they might not trust the doctor. These kinds of situations often lead to irrational medicine use. To find out the exact reasons why most of the respondents do not consult doctor before taking any medicines, it is very important to conduct further studies and identify the main reasons and appropriate measures that can be undertaken to tackle the issue such as conducting targeted awareness programs, strengthening communication between doctors patients and pharmacists, and strengthening rules and regulations.

As shown in Table 4.8, 63.5% of the respondents from surveyed households of Vaikaradhoo used to take missed dose of medicines once they remember. This result

was similar to a previous study that conducted un Saudi Arabia (Elddalo, Yousif, Suntha, & Abdallah, 2013). First of all it is very important to take the medicines as prescribed by doctor. It is important that ll the medicines are taken according to the prescribed way, especially antibiotics. If you missed a dose of medicine as prescribed, the best way is to seek doctor's advice at the time of every prescription.

Expiry date is the period which extended from the manufacture date of medicine to the date that medicines are no longer appropriate and recommended to use. As illustrated in Table 4.9, most (91.4%) of the respondents form surveyed households of Vaikaradhoo always check the expiry dates of medicines before they use the medicine. This is a positive finding. Similar studies were conducted in some other countries and the results that were obtained from those studies were also similar (Directorate of Rational Use of Medicines, 2009; Kumar et al., 2013). In addition, expiry dates on any medicine is valid only if the medicine is stored in an appropriate condition. No one should use any medicine after the expiry date of that medicine and if there is any colour changes from its regular colour.

As shown in Table 4.10 most (73.1%) of the respondents used to throw the left-over or unused medicines instead of keeping for future use. However, 15.4% of the respondents used to keep the left over medicines for future uses. The results of the current study are similar to results that were obtained from a previous study that was conducted in Oman (Directorate of Rational Use of Medicines, 2009). However, the result of the current study is different from the results of previous study that was conducted in India (Kumar et al., 2013). There might be several reasons for leftover medicines. Some possible reasons for left over medicine includes; some patients may visit to more than one health facility and they may buy 2 prescription of medicines for same illness, due to failure in compliance of prescribed medicines, failure to take the

correct dosage of the medicine as prescribed and unavailability of medicines from island pharmacy. Another reason for left over medicines might be prescribing of medicines more than needed. Those left over medicines should not be taken for any symptoms or illness on the basis of previous experience unless taking advice from a health professional. These issues often lead to the irrational medicines use. To find out the exact reasons for left over medicines, more studies should conduct and needed preventive measures must be taken. To overcome from the issue of use of left over medicines, adequate training sessions and awareness programs can be planned and implemented for health professionals as well as the public. In addition, policies or regulations on an organized method of collecting leftover medicines can be made and implemented and the government should make sure that all basic medicines are available within all inhabited islands.

As shown in Table 4.11, 67.3% of the respondents from surveyed households of Vaikaradhoo dispose both expired and non-expired medicines. The current study results are different from the results that obtained from some previous study results (;Directorate of Rational Use of Medicines, 2009; Kumar et al., 2013). All expired and unused medicines should be disposed safely. It is important to introduce sets of guidelines on safe ways of disposing unused medicines and conduct awareness programs to the community.

Non-compliance is another reason for irrational medicine use. This is a big concern for many countries. As table 4.12 illustrates, more than one fourth (26.9%) of the surveyed households respondents stops the medicine intake when they feel well. A study that was conducted in Saudi Arabia had shown that 30.5% of the surveyed participants used to stop medicine intake without seeking advice from the doctor when they feel better (Elddalo, Yousif, Suntha, & Abdallah, 2013). Some medicines

like pain killers might be good to stop after feeling well. But antimicrobial medicines and stronger medicines like steroids should not be stopped unless the prescribed courses of medicines are finished according to how it was prescribed by the doctor, even though the patient may be feeling well. The main reasons that cause such actions that lead to irrational medicine uses might be due to lack of knowledge, lack of communication between health care professionals. To overcome from these issues, awareness programs can be conducted to the community, during the awareness programs, make community aware or advise to the community to ask from the doctors and other health care professionals to explain the prescribed medicines and what medicines they can stop taking and what medicines they cannot stop the intake after feeling well. Trainings can be conducted to the health professionals such as doctors and pharmacists, during the training session, make sure that doctors, instead of only prescribing the medicine, explain to the patients more about what medicines he/she have prescribed, how that medicines should be taken and what would be the side effects that may arise during the treatment etc. During the training for pharmacists, advise to pharmacists to label correctly and label the medicines in a way that patient or consumer could understand that what kind of the medicine is that and how should it use and also to mention that they have to complete the dosages if the medicines are antimicrobials, steroids and other similar medicines. It is important to conduct further studies to identify the types of medicines the respondent used to stop the intake when they fell well.

There are different types of medicines and some medicines should be stored in different temperatures. As shown in Table 4.13, 48.1% of medicines were stored in a cupboard or drawer. It is important to know where the cupboard or drawer is located. The current study results are different from some previous study results (Directorate

of Rational Use of Medicines, 2009; Kumar et al., 2013). In some households cupboards or drawer where medicines stored might be located in a place where heat or steam is exposed which can damage the medicines. Some medicines may lose their exact action and becomes toxic before it expires due to the place of the storage. Though the percentage of the medicines that are stored in refrigerator were less (6.7%), it is important that patients know only specific medicines are needed to be stored in refrigerator to maintain their efficacy and quality. Some medicines may spoil or might not be effective if they are stored in refrigerator. Further studies have to be conducted in order to identify the types of medicines that are stored in particular ways by people. To overcome these issues, awareness programs can be conducted to the community. During the awareness programs advice community to ask from the health care providers whenever they prescribe medicines regarding how and where the medicines should be stored.

5.3 Conclusions

As an outcome of the study, majority of the respondents have adequate knowledge and positive attitude and practice regarding rational use of medicines. However, it is obvious that there are people in the community of Vaikaradhoo who have poor knowledge and misconception on medicines use. Therefore, there is need promoting rational use of medicines to the community of Vaikaradhoo to change the perception on their knowledge, attitude and practice regarding rational use of medicines.

5.4 Implications

By using the findings of this research and issues that clarified in the study will help health care professionals in the process of policy making and making decisions. Lots of knowledge was gained on the people's knowledge, attitudes and practice regarding

the rational use of medicines from this research. By using the information's of this research, we can understand the respondent's knowledge, attitudes and practice regarding the rational use of medicines. The findings of this research will help to promote the rational use of medicines.

5.5 limitations of the study

The questionnaire that used in this study was made of closed ended questions in multiple choice formats. This may result in results in misinterpretation of the respondent's knowledge, attitudes and their behavior. Due to the way the questionnaire was designed, respondent's reasons for their answers were not obtained. In addition, some information may be biased because the result that was obtained in this study was obtained according to the answers of the respondents. We don't know they were telling the truth or they were lying. Due to the limited time the questions were not further explained to the respondents, which might have limited the responses.

5.6 Recommendations

In light of the study results, the following recommendations have been suggested in order to improve rational use of medicines in the community of Vaikaradhoo.

- Increase awareness of the community as well as health care providers about possible dangers that may arise from irrational use of medicines.

- Make public and health care providers aware about the benefits of the rational use of medicines.

- Plan and implement effective public health education sessions with adequate resources.

- Plan and enforce regulations on rational use of medicines by government and other regulatory bodies.

- Further studies to understand more details on practices and attitudes towards medicine use.

5.7 Directions of future researches.

This is the first study that was done in Maldives to obtain the respondent's knowledge, attitude and practice regarding the rational use of medicines.

More researches needed to be conducted all across the Maldives to identify the community's knowledge, attitude and practice regarding rational use of medicines. More researches are needed to conduct which would be focusing on the factors that involved in the irrational use of medication to help in improving interventions and planning on rational medicine use. More researches are needed focusing on the healthcare professionals knowledge, attitude and practice toward the rational medicine uses.

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APPENDICES

APPENDIX A

Survey Questionnaire

Please answer each of the following items as they apply to you. Answer as honestly as you can.

Socio demographic information

1. Sex: Male ☐ Female ☐
2. Age: ☐
3. Marital status ("√" one answer)

   ☐ Single ☐ Married ☐ Divorced ☐ Widowed

4. What is your highest level of education? ("√" one answer)

   ☐ Basic ☐ Primary ☐ Secondary ☐ College or university

5. What is your occupation? ("√" one box)

   ☐ Private Job ☐ Government job ☐ Unemployed ☐ ther

6. How much is your income (MRF/month) in present?

   ☐ Less than 2000 ☐ 2000–3999 ☐ 4000–5999 ☐ 6000 or more

7. Is there any member in the family working in a health sector?

   ☐ Yes ☐ No

8. How many people live in the household?

   ☐ Less than 3 ☐ 3 to 6 ☐ more than 6

9. Is there anyone in the house suffering from chronic disease?

   ☐ Yes ☐ No

If Yes: ☐ Diabetes ☐ HTN ☐ Asthma ☐ Cardiac ☐ Other

10. Is there anyone in the house using traditional medicines?

☐ Yes ☐ No

11. How frequently traditional medicines used by the family?

☐ Usually ☐ Sometimes

12. Do you have medicine/s in your home?

☐ Yes ☐ No

Evaluation of respondents' knowledge about medicine

13. Aware about the expiry date of medicine?

☐ Yes ☐ No

14. Aware about the compliance of medicines?

☐ Yes ☐ No

15. Do you know that the same generic content of medicine is available under different names?

☐ Yes ☐ No

16. Aware about the places where medicines should be stored at home?

☐ Yes ☐ No

Evaluation of respondents' attitude about medicine

17. Do you believe that medicine is needed for every illness?

☐ Yes ☐ No

18. Do you believe costlier medicines are better than cheaper medicines?

☐ Yes ☐ No

19. Do you believe that the increase in number of medicines in a prescription will be better & earlier will be the relief?

☐ Yes ☐ No

Evaluation of practices of medicine use in respondents'

20. Peoples from whom you sought medicines

☐ Physician ☐ Family or friends ☐ Self-medication

21. What do you do if you missed a dose?

☐ Take the missed dose once I remember ☐ Postpone taking it with the next dose

☐ Continue the treatment without substitution

22. Do you check the expiry date before you use the medicine?

☐ Always ☐ No ☐ Sometimes

23. How do you deal with left-over or unused medicines?

☐ Keep them ☐ Return them to pharmacy ☐ Throw them

24. Which medicines do you dispose?

☐ Expired medicines only ☐ Both expired and non-expired medicines

25. What do you do after feeling well?

☐ Stop medicine intake and then consult doctor ☐ Consult Doctor

☐ Continue medicine intake as prescribed ☐ Stop medicine intake

26. The common places where medicines stored at home

☐ Medicine's Box ☐ Refrigerator

☐ Cupboard/Drawer ☐ Other

Interviewer: _____

Date: _____

Checker: _____

Date: _____

APPENDIX B

ސުވާލު ފޯމު

ތިރީގައިވާ ސުވާލުތަކުގެ އެންމެ ރަނގަޅު ޖަވާބެއް ދޭތި ގޮތުގައި ހުރި ފޮށިގަ ޗެކް ޖަހާ ސުވާލު ފޯމު ނަންބަރ: ☐

1. ޖިންސު: އަންހެން: ☐ ފިރިހެން: ☐

2. އުމުރު: ☐

3. ކައިވެނީގެ ހާލަތު: އިނދެގެން: ☐ ވަރިވެފަ: ☐ ނުއިނދެ: ☐ އަނބި/ފިރި މަރުވެފަ: ☐

4. ތައުލީމީ ފެންވަރު: އަސާސީ ތައުލީމު: ☐ ޘާނަވީ ތައުލީމު: ☐
   ދުރުމަދަރުސީ ތައުލީމު: ☐ މަތީ ތައުލީމު: ☐

5. އާމްދަނީ ހޯދުމަށްޓަކައި ކުރާ މަސައްކަތް: ސަރުކާރު ވަޒީފާގައި: ☐ އަމިއްލަ ކުންފުންޏެއްގައި : ☐
   މަސައްކަތެއް ނުކުރޭ: ☐ އެހެނިހެން: ☐

6. މަހެއްގެ މައްސަރު ލިބޭ އާމްދަނީ: 2000 އަށް ވުރެ މަދު: ☐ 2000 އާއި 3999އާ ދެމެދު: ☐
   4000އާއި 5999އާ ދެމެދު: ☐ 6000އަށް ވުރެ މަތި: ☐

7. ތިގޭގައި ސިއްޙީ ދާއިރާގައި މަސައްކަތު ކުރާ ފަރާތެއް އުޅޭތަ؟ އާނއެކޭ: ☐ ނޫނެކޭ: ☐

8. ތިގޭގައި ދިރިއުޅޭ މީހުންގެ އަދަދު :
   3 މީހުނަށްވުރެ މަދު: ☐ 3 އާއި 6 މީހުނާ ދެމެދު: ☐
   6 މީހުނަށްވުރެ ގިނައިން: ☐

9. ތިގޭ ދިގު މުއްދަތަކަށް ފަރުވާކުރަންޖެހޭ ބަލިމީހަކު އުޅޭތަ؟ އާނއެކޭ: ☐ ނޫނެކޭ: ☐

   އާނއެކޭ ނަމަ: ހަކުރުބަލި: ☐ ހިތުގެ ބަލި: ☐ ލޭމައްޗަށް ދިއުން: ☐

   ނޭވާ ހިއްލުން: ☐ އެހެނިހެން: ☐

10. ތިގޭގައި އެއްވެސް ވަރަކަށް ދިވެހި ބޭސް ބޭނުން ކުރޭތަ؟ އާނއެކޭ: ☐ ނޫނެކޭ: ☐

11. ތިމާގެއަކީ ކައިރި ދިލާ ތަކެ ތަކެއް ހުންނަ ތަނެއް؟ ހުންނެއް: ☐ ނެތެއް: ☐

ވަކި ގޮތެއް: ☐

12. ކައިރި ގުދަނެއް ވަކިން ލައިސަންސް ހުރިތަ؟ ހުރިއެއް: ☐ ނެތް: ☐

13. ތާއީދު ދޫކުރާ ހަކަށް ތިމާ ތަކެއްތައް ގުދަނުގައި ބަހައްޓާ ހިނދު؟

ހުރިއެއް: ☐ ނެތް: ☐

14. ތަކެ ތަކެއް ކައި ފާރުގައި ކުއްތާ ފެތުރުމުގެ ދާރިމްދ ކަން ހުއްދަ؟

ހުރިއެއް: ☐ ނެތް: ☐

15. ގުދަ ތަކަށް ތިގާ ތާރާ ކަމުގައި ހުއްދަ؟ ހުރިއެއް: ☐ ނެތް: ☐

16. ކައިރި ތަކެ ތަކެއް ކަނޑައެޅި ގޮތަކަށް ތާރާ ތަކެއް ދެއްކުމުގެ ފާސްކަން ހުރި؟

ހުރިއެއް: ☐ ނެތް: ☐

17. ތާރާ ކުރާ ފަރާތް ތަކެ ތަކެއް ކަނޑައެޅި ގޮތަށް ކަންކަން ކުރަނީ؟

ހުރިއެއް: ☐ ނެތް: ☐

18. ތާރާ ހިންގާ ތަކަށް ތާރާ ކުރާ ގޮތާ ގުޅޭ ތަކެ ތަކެއް ކަނޑައެޅި ގޮތަށް ކަންކަން ކުރަނީ؟

ކަނޑައަޅާ؟ ހުރިއެއް: ☐ ނެތް: ☐

19. ފިނިމާ ތަކެ ތަކެއް ވަކިން ތާރާ ކުރާ ގޮތަށް ކަންކަން ކުރަނީ؟

ހުރިއެއް: ☐ ނެތް: ☐

20. ތަކެ ތަކެއް ކަނޑައި:

ލައިސަންސް ދިނުމުގެ ކުރިން ☐: ތާރާ ކުރާ ތަނަށް ބަލާ ފަދަ ☐

ތާރާ ކުރާ ތަން: ☐

21. ތަކެ ހުންނެވި ވަގުތުގައި ތަކެ ތަކެއް ކަނޑައެޅި ގޮތަށް ހިފަ ހުރި ތަކެ ތަކެއް ކަނޑައި:

ހަނގުރާމާ ބެހޭ ތަކެ ތަކެއް ☐ ތާރާ ކުރާ ☐

ދުވަ ކަނޑައި ތަކެ ތަކެ ތަކެ ☐: ☐

22. ބޭރުގެ މުއްދަތެއް ހަމަވާ ތާރީޚް ޗެކް ކުރަންތޯ؟

އަބަދުވެސް ކުރަން: ☐ އެއްގޮތަކަށްވެސް ނުކުރަން: ☐ ބައެއްފަހަރު ކުރަން: ☐

23. ބޭނުންކޮށްފަ ބާކީވާ ބޭހެއް ހަދަނީ ކިހިނެއް؟

އެހެންފަހަރަކުން ބޭނުންކުރަން ބަހައްޓަނީ: ☐ އުކާލަނީ: ☐

ބޭސް ފިހާރައަށް އަނބުރާ ރައްދު ކުރަނީ: ☐

24. ކޮންކަހަލަ ބޭސްތަކެއްތޯ ނަގާލަނީ؟

މުއްދަތު ހަމަވެފަ ހުންނަ ބޭސް: ☐ މުއްދަތު ހަމަވެފަ ހުންނަ ބޭހާއި މުއްދަތު ހަމަ ނުވާ ބޭސް: ☐

25. ބަލިން ރަނގަޅުވީމައި ދެން ކަނބަލުކުރަނީ ކިހިނެއް؟

ބޭސް ބޭނުން ކުރުން ހުއްޓާލުމަށް ފަހު ގޭކުނިބައި ދައްކާނީ: ☐ ބޭސްދެއުން ހުއްޓާލަނީ: ☐

ބޭސް ސިޓީގައި ވާގޮތަށް ކުރިއަށް ގެންދަނީ: ☐ ގޭކުނިބަރަށް ދައްކާނީ: ☐

26. އާންމުކޮށް ގެއަކީ ބޭސް ރައްކާ ކުރަނީ ކޮންތާކު؟

ބޭސް އެޅުމަށް ޚާއްސަ ކުލަފިޔާގައި ފުށްޓަކަށް: ☐ ކަބަޑަކަށްލަނީ: ☐

އައިސް އަލަމާރިއަށް: ☐ އެހެނިހެން: ☐

27. ގެއަކި މުއްދަތު ހަމަވެފައި ހުރި ބޭސް އެބަހުރިތޯ؟ އާންއެކޭ: ☐ ނޫނެކޭ: ☐

އިންޓަވިއުކުރި ފަރާތް:-------------------- ތާރީޚް:----------------------

ޗެކްކުރި ފަރާތް:------------------------ ތާރީޚް:--------------------

APPENDIX C

Consent Letter for Survey

Dear participant,

I am a student at Maldives National University in the Faculty of Health Sciences where I am currently studying Bachelor in Primary health Care. You are invited to participate in a survey to identify knowledge Attitude and Practice regarding the rational use of medicines in Vaikaradhoo as a part of my study. You were selected as a possible participant in this study on behalf of your household.

If you decide to participate, please answer the questions asked. It will take approximately 15 – 20 minutes of your time.

Any information that is obtained in connection with this study will remain confidential and anonymous. The information provided by you in this questionnaire will be used only for research purposes. It will not be used in a manner which would allow identification of your individual responses.

If you decide to participate, you are free to discontinue participation at any time without prejudice. If you have any questions, please feel free to ask.

Thank you for your consideration.

Sincerely,

Ahmed Asfaan

APPENDIX D

ތިއުމަށްޓަކައި ކުރަންޖެހޭ ކަންތައް

ވުޒާރާ ސަރުކާރުން ގެންދާ ތަރައްޤީގެ ހުރިހާ ކަންކަމުގައި ފުރިހަމަ ބައިވެރިވުމަށް ތަންތަނުގައި ދަތި ހުރިހާ ބޭފުޅަކަށް ހުއްދަ ދެއްވާ ގޮތަށް ކަންކަން ބަދަލުކުރުމަށް ތަންތަނުގެ ދަށުން ވަޒީފާ ދެއްވާ ގޮތަށް ކަންކަން ބަދަލުކުރުމަށް ދަތި ހުރިހާ ބޭފުޅަކަށް