



CHAPTER III

RESEARCH METHODOLOGY

3.1 Study design

The study design was a descriptive cross-sectional study concerning Knowledge, Attitudes, and Practices of dengue fever prevention among the people in Male', Maldives.

3.2 Study population

The population in this study was residents of Male' who were living there for at least one year and are of age between 18 - 60 yrs.

3.3 Study area

Male' was selected as the study area due to the high population density and availability of adequate data. It is the home of over 103,693 people and data on dengue occurrence is available from 1998 up to 2006. So considering these factors Male' was selected as an ideal for this survey. Male' has an area of roughly two square kilometers. Administratively Male' is divided into four districts. Each district is divided by roads.

Henveiru:	occupies the North-East side
Maafannu:	occupies the North-West side
Galolhu & Machchangolhi:	lie in the centre and to the south.

Majority of the island is not zoned, between residential and commercial areas. It is further divided into blocks and every block has a unique block number assigned by Male' Municipality. Each block may enclose several houses, shops, garages and many more. All the houses in Male' has a name unlike a numeric address as in other countries. All the roads are paved in Male' and the drainage is handled by a system of drains on either side of the roads which connect to underground wells. There has been lot of conjectures about these wells as a source of misquote. However, there has been no survey of mosquito breeding sites undertaken in Male'. Other than this, mosquitoes are thought to breed on roof gutters and underground wastewater tanks in Male'.

3.4 Study period

From February 19, 2008 - March 08, 2008.

3.5 Sample size

$$N = \frac{z^2 pq}{d^2}$$

Where z = the reliability coefficient at 95% confidence interval (1.96)

d = acceptable error (0.05%)

p = proportion in the population possessing the characteristic of interest

$q = (p-1)$

The above formula was used to calculate the sample size. As studies were deficient in this topic in Maldives a pilot study was done and then computed an estimate for the value for "p" which then was applied to calculate sample size.

Standard values which can be used in this formula to calculate the sample size might be either larger or smaller of a better estimate of p. “This procedure should be used only if one is unable to arrive at a better estimate of p” (Wesson, 2006).

Below shows the percentages which have been calculated from the pilot study and the value for p which was used in this study was 68%.

Knowledge: 69%

Attitude: 74%

Practice: 68%

The pilot study was done in another district which was not included in the actual survey. The district selected was Machchangolhi which lie in the center and to the south side of Male’ and 30 household was selected to participate in the pilot study.

$$\begin{aligned}
 N &= \frac{1.962 \times 0.68 \times 0.32}{0.05 \times 0.05} \\
 &= 334 + 33 (10\%) \\
 &= 367 \\
 &= 374 \text{ sample size}
 \end{aligned}$$

The sample size turned out to be 374 instead of 367 because the 19 blocks which was selected randomly had a total number of 374 houses. Hence all the houses have been included in the survey.

3.6 Sampling Methods

Step 1: Purposive sampling method was used and “Maafannu” was chosen among the four districts. This was because this area was considered to have more

people living than the rest of the three districts. Maafannu has a total number of 134 blocks and 2,292 houses.

Step 2: Each District is further divided into block and numbers have been assigned to these blocks. Therefore in this step simple random sampling method was used to select the blocks. Each block did not exceed more than 100 houses. A total of 19 blocks were selected randomly and all the houses in those blocks were included in the survey. A total of 374 houses were in the 19 blocks which have been selected.

Step 3: After selection of the household, head of each selected household was interviewed.

3.7 Ethical Considerations

Verbal consent was taken from all the respondents before data collection process. The respondents were explained in detail the full description of the research, confidentiality, and voluntary participation. Every received data were treated carefully and privately with no name tag in it. Ethical committee in Maldives reviewed the proposal for ethical consideration and approval was taken prior to the study. The three principles which need to be followed in any research which is beneficence, respect of human dignity and justice was considered in this study.

3.7.1 Beneficence

Polit & Beck (2004) defined beneficence “An obligation to do no harm by protecting the participants from physical and psychological harm, and preventing them from exploitation. Most of all, it involves doing some good.” Roberts & Taylor (1998) suggested that “Researchers need to consider the ultimate benefits of the research against potential harm before they carry out any research.”

3.7.2 Respect for human dignity

Roberts & Taylor (1998) mentioned that respect for human dignity “Involves full disclosure of the research project and letting the participants decide whether to participate or not in the study. This principle respects the basic human right of self-determination and autonomy.” This was ensured through consent.

3.7.3 Justice

“This means that the study participants have the right to be treated equally and fairly in the selection as well as during the course of the study.” (Polit & Beck, 2004) “They must be treated with respect and courtesy throughout the research process. Their right to privacy and confidentiality must be observed through anonymity or confidentiality procedures that safeguard the information provided by the participants.” (Roberts & Taylor, 1998)

3.8 Research Instrument and Measurement

A standardized questionnaire was developed from questionnaires which have been used in earlier studies and from different articles related to dengue fever and was used for the survey. The questions were directed towards gaining information regarding the people’s knowledge, attitude and practice on dengue fever. It also included the socio-demographic characteristics of the subjects. The questionnaire was translated from English to Dhivehi and was made sure that the original meaning is retained.

The questionnaire was divided into 5 core categories and they are:

Part I (Socio-demographic):

There were 11 questions in this part. The questions include sex, age, etc. Single question which asked about the source of information in which they receive regarding dengue fever have been included in this part.

Part II (Knowledge regarding Dengue Fever):

There were 14 questions in this part and were asked to know the knowledge of dengue fever which included signs and symptoms, transmission, treatment and prevention. Each question had two choices. A correct answer was given 1 score and 0 score for a wrong answer. The score varied from 0 – 14 points and was classified into 3 levels as follows: Bloom's cut off point, 60-80%.

High level (80-100%)	12-14 scores
Moderate level (60%-79%)	09-11 scores
Low levels (less than 59%)	00-08 scores

Part III (Attitudes regarding Dengue Fever):

This part includes the attitude of the people towards dengue fever in the aspect of prevention and it was assessed by using Likert's scale. There were 12 statements which included both positive and negative. The rating scale was measured as follows:

Positive Statement		Negative Statement	
Choice	Scores	Choice	Scores
Strongly agree	5	Strongly agree	1
Agree	4	Agree	2
Neither agree nor disagree	3	Neither agree nor disagree	3
Disagree	2	Strongly disagree	4
Strongly disagree	1	Strongly disagree	5

The scores varied from 12 to 60 and all individual answers were summed up for total scores and calculated for means. The scores were classified into 3 levels (Positive Attitude, Neutral Attitude and Negative Attitude).

Positive Attitude	47-60 scores
Neutral Attitude	41-46 scores
Negative Attitude	12-40 scores

Part IV (Practices regarding Dengue Fever):

13 items have been included in this part. For several items, many respondents answered “Do not have”. In such items sample sizes were too small to allow meaningful, representative analysis of practice in relation to independent variables. Hence, in this study only 8 items were analyzed (item 1, 7, 8, 9, 10, 11, 12 and 13) and the score in practices regarding dengue prevention of the respondents varied from 0 to 8, and were classified into 3 levels. These 8 items were all assessed as zero-one indicator (dummy) variables. These variables were given value zero for “no” and value one for “yes”. They were good practice, fair practice and poor practice (Bloom’s cut off point, 60-80%).

Good Level	07 – 08 scores
Fair Level	05 - 06 scores
Poor Level	00 - 04 scores

Part V (Observation):

Observation checklist was included in this part. This was a non-participant observation where the researcher does not get involved in the activities of the group but rather remains as a passive observer. So here the researcher only examine and then draw a conclusion from what have been observed.

3.9 Validity

Validity is the test which measures the desired performance and appropriate inferences can be drawn from the results (New Horizons for Learning, 2007). The assessment accurately reflects the learning it was designed to measure. Content validity was ensured by taking suggestions from qualified persons. The questionnaire was amended according to the suggestions.

3.10 Reliability

Reliability is the measure of consistency for an assessment instrument. The instrument should yield similar results over time with similar populations in similar circumstances (New Horizons for Learning, 2007). To ensure reliability, the questionnaire was pre-tested before the actual data collection began, with 30 people who are living in Male'. And the internal consistency was analyzed by using Cronbach's Alpha Coefficient. Upon analysis, the Cronbach's Alpha result was 0.73 for knowledge part, 0.71 for attitude part, and 0.80 for practice part. The overall Cronbach's Alpha Coefficient value was 0.80.

3.11 Pilot Study

Pilot study is a smaller version or trial run of a larger study that is conducted in preparation for that study; can involve pre-testing or 'trying out' a research tool such as a data-collecting form (International Center for Eye Health, 2007). The survey questionnaire was pilot tested in the same population but in a different district in order to identify any problems with the wording and obtained feedback on potential difficulties when answering the questions and filling the form. The participants were

asked the same questions as the actual study participants. They were asked to comment on any difficulties they face in understanding the questions. It took 10-15 minutes for them to complete the questionnaire. No major adjustments were brought to the questionnaire after the pilot study, only minor changes were made.

3.12 Data Collection Process

After getting the ethical approval from Ministry of Health, Maldives a pilot study was done of 30 households in a different district as the actual survey. The researcher spent 03 days (19/02/2008 – 21/02/2008) for the pilot study. After that the data collection for the actual survey was started. For that the researcher spent 15 days (23/02/2008 – 08/03/2008) every day from morning 10:00 hrs till evening 18:00 hrs in completing the questionnaires. The 374 completed questionnaires were then used for the analysis.

3.13 Data Analysis and Statistic Application

Data was analyzed by using SPSS program, version 15 for windows. The questionnaires were weighed against the database to check the accuracy of the data entry a minimum of two times. Any error found was corrected before the actual analysis. Descriptive statistics (frequency, percentage, mean and standard deviation) were used primarily to summarize and describe the data to make it more graspable. For analytical statistic Chi-square was used where appropriate and correlation coefficient was used to describe the strength and direction of the relationship between two variables.

Frequency distribution in terms of:

- Socio-demographic characteristics
- Level of knowledge
- Attitude towards dengue fever
- Practice regarding dengue fever prevention

Cross-tabulations:

Level of practice behaviors of dengue fever prevention with

- Age, Sex, Marital Status, Education,
- Occupation,
- Sources of information about dengue fever, etc

Association between:

- Socio-demographic characteristics and practice
- Knowledge and practice
- Attitude and practice

3.14 Limitations of the Study

3.14.1 Study Design: A descriptive study design was used to describe the knowledge, attitude and practices of the study participants in relation to dengue fever prevention. Descriptive designs do not attempt to generalize the findings to populations outside the study participants. Therefore, findings of this study could not be generalized beyond the participants of the study. As this study was done in Male', the capital of Maldives it cannot be generalized to the rest of the community who are living in other small islands.

3.14.2 Proportion of the Population: In this study females proportion is higher than males. The male: female ratio in this study was 1.5 which meant there

were 150 men to every 100 women. Whereas in Maldives, for the whole population the ratio is 1.05 which meant there are 105 men to every 100 women. So the result might not represent the society as a whole.

3.14.3 Data Collection Tool: Another limitation of this study was that it used a structured questionnaire to collect data from the survey population. This limited the responses that the people could choose from and did not have the capacity for in-depth answers. Dengue is a vast and very important topic and only some aspects were included in the questionnaire leaving many areas of knowledge not explored.

3.15 Summary

This chapter has discussed the research methods used for this descriptive study, with specific focus on sample and setting, questionnaire development, validity and reliability, ethical considerations, methods of data collection and analysis. The next chapter will describe in detail the results or findings of the data analysis.