PERCEPTION OF FAMILY PLANNING UTILIZATION AMONG TYPE 2 DIABETES MELLITUS WOMEN, SPOUSE AND HEALTH CARE PROVIDERS-A QUALITATIVE STUDY

SANTHI A/P SUBRAMANIAM

THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PUBLIC HEALTH

FACULTY OF MEDICINE
UNIVERSITY OF MALAYA
KUALA LUMPUR

2018

ORIGINAL LITERARY WORK DECLARATION

Name of Candidate: Dr Santhi Subramaniam
Registration/Matric No: MHC150013

Name of Degree: Doctor in Public Health

Title of Thesis ("this Work"): Perception of Family Planning Utilization among Type 2 Diabetes Mellitus Women, Spouse and Health Care Providers-A Qualitative Study

Field of Study: Family Health

I do solemnly and sincerely declare that:

(1) I am the sole author/writer of this Work;

(2) This Work is original;

(3) Any use of any work in which copyright exists was done by way of fair dealing and for permitted purposes and any excerpt or extract from, or reference to or reproduction of any copyright work has been disclosed expressly and sufficiently and the title of the Work and its authorship have been acknowledged in this Work;

(4) I do not have any actual knowledge nor do I ought reasonably to know that the making of this work constitutes an infringement of any copyright work;

(5) I hereby assign all and every rights in the copyright to this Work to the University of Malaya ("UM"), who henceforth shall be owner of the copyright in this Work and that any reproduction or use in any form or by any means whatsoever is prohibited without the written consent of UM having been first had and obtained;

(6) I am fully aware that if in the course of making this Work I have infringed any copyright whether intentionally or otherwise, I may be subject to legal action or any other action as may be determined by UM.

Candidate's Signature Date:

Subscribed and solemnly declared before,

Witness's Signature Date:

Name:

Designation:

PERCEPTION OF FAMILY PLANNING UTILIZATION AMONG TYPE 2 DIABETES MELLITUS WOMEN, SPOUSE AND HEALTH CARE PROVIDERS-A QUALITATIVE STUDY

ABSTRACT

Family planning is an effective intervention for reducing pregnancy-related complications and morbidity among women of reproductive age who have type 2 diabetes mellitus (T2DM). Primary healthcare facilities promote family planning services and cater for T2DM women. However, utilization of the family planning methods offered by primary healthcare facilities is reported to be low among T2DM women. Understanding this underutilization of family planning methods and services is critical for pregnancy and disease management optimization. Therefore the main aim of this study is to explore the factors influencing family planning utilization among T2DM women from the perspectives of T2DM women, their spouses and primary healthcare providers in Gombak district, Selangor, Malaysia. This study took place in seven primary healthcare clinics from March to October 2017. This study adopted a qualitative approach that involved eight non-participant observations conducted using a checklist (Adapted and Modified from: Tools to Assess Family Planning Counselling: Observation and Interview) and 38 in-depth interviews. The interviewees consisted of 11 T2DM women, seven spouses and 20 healthcare providers. Purposive sampling was applied and the interviews were conducted by the researcher in either the English or the Malay language and by following tailor-made semi-structured interview guides that covered topics such as types of methods preferred and perceptions on family planning utilization and services at primary healthcare services. All interviews were recorded, transcribed and analysed by using thematic analysis. Data management was performed by using NVIVO version 11 software. Several strategies were adopted to enhance

the quality of data analysis, e.g. triangulation (data, method and investigator), peer review and feedback from presentations at district meetings and conferences. Thematic analysis was used to explore the findings from the interviews which were categorized into 14 themes at three Socio-ecological model levels, the individual, interpersonal and organizational. Underutilization of family planning was influenced by personal preferences and goals, and lack of healthcare providers' expertise delivering family planning services. This, followed by information-seeking related to family planning methods from entrusted spouse, family members, friends, and healthcare providers to enable decision-making related to utilization of family planning methods. The study also elicited suggestions from the interviewed healthcare providers regarding ways in which family planning services might be improved, from which seven themes emerged. Improving the current services in primary healthcare facilities and increasing knowledge among the healthcare providers are among strategies suggested by the providers to increase family planning utilization. The findings of this study suggest that an element of uniqueness exists because individual experiences with regard to the side effects of family planning methods and complications are different for each woman. This study also highlighted the importance of spouses' role especially in family planning utilization decision-making. They also underline the importance of the role of healthcare providers and the current healthcare system in providing family planning services within primary healthcare facilities. In addition, the findings imply that T2DM women should be encouraged to share their concerns with their healthcare providers. Simultaneously, healthcare providers should be equipped with adequate information and skills to provide suitable family planning methods to diabetic women. This would reduce unnecessary pregnancy-related complications being experienced by T2DM women. T2DM women should be encouraged to share their concern on family planning methods with their healthcare providers. Simultaneously, healthcare providers could encourage patients to verify any new

information received from sources other than medical experts. The findings of this study are believed to have broader applicability to women with other pre-existing medical illnesses that are managed at primary healthcare facilities.

Keywords: Type 2 diabetes mellitus women, Family planning utilization, spouse, healthcare providers

PERSEPSI PENGGUNAAN PERANCANG KELUARGA DIKALANGAN WANITA KENCING MANIS, SUAMI DAN KAKITANGAN PERUBATAN- KAJIAN KUALITATIF

ABSTRAK

Penyakit kencing manis semakin meningkat di kalangan wanita reproduktif. Perancang keluarga adalah satu intervensi yang berkesan untuk mengurangkan morbiditi di kalangan wanita golongan reproduktif yang menghidap penyakit kencing manis. Kerajaan menyediakan perkhidmatan perancang keluarga untuk wanita yang menghidap penyakit kencing manis di klinik kesihatan. Walaubagaimanapun, perkhidmatan ini tidak digunakan sepenuhnya oleh wanita kencing manis yang menerima rawatan di klinik kesihatan kerajaan. Kepentingan perancang keluarga perlu ditekankan untuk membantu wanita kencing manis mengoptimakan komplikasi semasa mengandung dan kesihatan. Objektif kajian ini adalah untuk mengkaji faktor-faktor yang mempengaruhi penggunaan perancang keluarga di kalangan wanita kencing manis, dari perspektif wanita yang menghidap kencing manis, suami dan kakitangan perubatan di fasiliti kesihatan kerajaan daerah Gombak, Selangor. Kajian ini menggunakan "social ecological model" (SEM) untuk membantu menjawab soalan kajian. Kajian ini dijalankan di tujuh fasiliti di daerah Gombak dari Mac hingga Oktober 2017. Satu kajian kualitatif dijalankan melalui lapan pemerhatian, diikuti dengan 38 temuduga. Temuduga diadakan keatas sebelas wanita kencing manis, tujuh suami dan 20 kakitangan perubatan yang bertugas di klinik (doctor dan jururawat). "Purposive sampling" telah digunakan. Wawancara separa struktur telah dijalankan oleh penyelidik dalam Bahasa Inggeris atau Bahasa Melayu menggunakan panduan temubual. Semua temubual telah direkod dan dianalisis menggunakan analisis tematik. Pengurusan data dibuat dengan menggunakan perisian NVIVO versi 11. Hasil daripada kajian, terdapat 14 tema yang menpengaruhi penggunaan perancang keluarga di tiga peringkat SEM iaitu individu,

interpersonal dan organisasi. Penggunaan perancang keluarga dipengaruhi oleh pilihan sendiri dan matlamat, dan kekurangan kepakaran kakitangan perubatan dalam perkhidmatan perancang keluarga. Ini diikuti dengan pengaruh maklumat yang dikongsi bersama suami, ahli keluarga, kawan-kawan dan kakitangan perubatan dalam membuat keputusan penggunaan perancang keluarga. Kajian ini juga menganalisa cadangan daripada kakitangan perubatan untuk meningkatkan penggunaan perkhidmatan perancang keluarga, tujuh tema muncul hasil daripada itu. Antara strategi yang dicadangkan oleh kakitangan perubatan ialah menambahbaikkan perkhidmatan perancang keluarga yang sediaada di klinik dan meningkatkan pengetahuan dikalangan mereka. Hasil kajian ini menunjukkan terdapat elemen keunikkan kerana pengalaman kesan sampingan dan komplikasi bagi setiap wanita kencing manis disebabkan oleh penggunaan perancang keluarga. Suami memainkan peranan yang penting dalam membuat keputusan bersama dalam penggunaan kaedah perancang keluarga. Kajian ini juga membincangkan kepentingan tanggungjawab pegawai perubatan atau jururawat dan penambahbaikan dalam sistem yang sediaada untuk melancarkan perkhidmatan perancang keluarga. Wanita kencing manis digalakkan berbincang tentang kebimbangan mereka dengan pegawai perubatan atau jururawat. Di samping itu, pegawai perubatan dan jururawat harus dilengkapi dengan pengetahuan dan teknik yang cukup untuk membincangkan kaedah perancang keluarga. Mereka dapat mengalakkan pengunaan perancang keluarga dikalangan wanita kencing manis dengan mengesahkan maklumat yang diperolehi dari sumber luar. Dengan ini, komplikasi disebabkan kencing manis semasa mengandung boleh dikurangkan di kalangan wanita kencing manis yang reproduktif. Kesimpulannya, penemuan dari kajian ini dipercayai mempunyai aplikasi keseluhuran yang lebih luas kepada penyakit kronik lain yang diuruskan di fasiliti klinik kesihatan.

Acknowledgements

Above all, I wish to thank almighty God for granting me strength throughout my studies that has sustained me until their completion. I would like to thank my supervisors, Dr. Nik Daliana Nik Farid and Associate Professor Dr Mas Ayu Said in the Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya for their valuable comments, remarks, engagement and dedication through the learning process of DrPH journey. You patiently read, encouraged and provided me thoughtful critiques and concise advice throughout the study. Sincerely, I would like to thank Gombak district health office management and staffs for their support throughout my research course. I am grateful to all the participants for your generous cooperation. The financial support of PPP grant (PG228-2016A) is gratefully acknowledged. To my classmates, thank you for your supports and thoughtful suggestions. Finally, I offer my deep gratitude to my family and friends. Without your understanding and great comfort, it would have been difficult for me to finish the thesis.

Table of Contents

ABSTRACT iii
ABSTRAK vi
Acknowledgements viii
Table of Contents ix
List of Figures xiv
List of Tables xv
List of Abbreviations xvi
List of Appendices xvii
Operational Definitions xviii
Conference Proceedings xix
CHAPTER 1: INTRODUCTION 1
1.1 Introduction 1
1.2 Background 1
1.3 Family planning 2
1.3.1 Benefits of family planning 2
1.3.2 Types of family planning 3
1.4 Types of diabetes 5
1.4.1 Impact of type 2 diabetes mellitus on pregnancy 5
1.5 The healthcare system in Malaysia 7
1.5.1 Primary care in Malaysia 8
1.6 Problem Statement 10
1.7 Study Rationale 14
1.8 Research Aim, Objectives and Questions 16
1.8.1 Research aim 16
1.8.2 Research objectives 16
1.8.3 Research questions 17
1.9 Course of Research Development 19
1.10 Thesis Outline 19
1.11 Conclusion of Chapter One 20
CHAPTER 2: LITERATURE REVIEW 21
2.1 Introduction 21
2.2 Type 2 Diabetes Mellitus 21
2.2.1 Overview and epidemiology of Type 2 diabetes mellitus 21
2.2.2 Health facilities which patients seek treatment 24

2.3 Prevalence of Family Planning 26
2.4 Transitions in the Family Planning Programme in Malaysia 28
2.4.1 The National Family Planning Programme 28
2.4.2 The evolution of family planning policy 28
2.4.3 Family planning initiatives 29
2.5 Factors Influencing Family Planning Utilization 34
2.5.1 Individual-level factors 35
2.5.2 Interpersonal-level factors 38
2.5.3 Organizational-level factors 44
2.6 Research Gaps 47
2.7 Theoretical and Conceptual Framework..... 50
2.7.1 Social ecological model (SEM) 50
2.7.2 Conceptual framework 54
2.8 Summary..... 55
CHAPTER 3: METHODOLOGY 57
3.1 Introduction 57
3.2 Study Design 57
3.3 Researcher's Role 58
3.4 Study Area 59
3.4.1 Selection of institutions 61
3.5 Setting.....62
3.5.1 Family planning services in Gombak District 63
3.6 Selection of Participants 64
3.6.1 Recruitment of participants 64
3.7 Sample Size and Saturation 69
3.8 Data Collection Methods 69
3.8.1 Non participant observation 69
3.8.2 In-depth interview..... 70
3.8.3 Field notes 71
3.8.4 Review of documents 71
3.9 Study Instruments 72
3.9.1 Checklist for observation..... 72
3.9.2 Interview guide 72
3.10 Pilot Study 73
3.11 Data Collection.....75
3.11.1 Non Participant observation 75

3.11.2 Review of documents 76
3.11.3 In-depth Interviews 77
3.11.3.1 Interview with T2DM women 78
3.11.3.2 Interview with spouses 79
3.11.3.3 Interview with healthcare providers 80
3.12 Data Analysis 81
3.13 Data Verification and Trustworthiness 86
3.14 Self -reflection 88
3.14.1 Handling of the data 89
3.13 Triangulation 89
3.16 Ethical Approval 90
3.17 Summary 91
CHAPTER 4: FINDINGS 93
4.1 Introduction 93
4.2 Findings from Non-participant Observation 93
4.2.1 Physical Structure of health clinics 94
4.2.2 Clinic work flow 94
4.2.3 Observation during consultation between 96
4.2.4 Challenges observed in primary healthcare facilities 97
4.3 Findings from Review of documents 99
4.4 Descriptive Statistics of the Interview Participants 100
4.4.1 Type 2 diabetes mellitus women 100
4.4.2 Spouses 100
4.4.3 Healthcare providers 101
4.5 Findings from the In-Depth-Interviews 101
4.5.1 Factors influencing utilization of family planning 101
4.5.1.1 Individual-level factors by theme 101
4.5.1.2 Interpersonal-level factors by theme 129
4.5.1.3 Organizational-level factors by theme 143
4.5.2 Suggestions for improving family planning utilization from the providers perspective 155
4.5.2.1. Individual-level suggestions in the SEM 155
4.5.2.2 Interpersonal-level suggestions in the SEM 157
4.5.2.3 Organizational-level suggestions in the SEM 158
4.5.2.4 Community-level suggestions in the SEM 162
4.6 Validity of the Study 163

4.7 Summary 164
CHAPTER 5: DISCUSSION 167
5.1 Introduction 167
5.2 Relation of SEM to the Findings of the Study 168
5.3 Factors Influencing Family Planning Utilization among Type 2 Diabetes Mellitus Women 169
5.3.1 Individual-level factors of SEM affecting family planning utilization 170
5.3.2 Interpersonal-level factors of SEM affecting family planning utilization..... 175
5.3.3 Organizational-level factors of SEM affecting family planning utilization 177
5.4 Suggestions from the Providers to Improve Family Planning Utilization and Services in Primary Healthcare Facilities 179
5.4.1 Suggestions at the individual-level of the SEM 180
5.4.2 Suggestions at the interpersonal-level of the SEM..... 181
5.4.3 Suggestions at the organizational-level of the SEM..... 182
5.4.4 Suggestions at the community-level of the SEM 183
5.5 Strengths of the Study 183
5.6 Limitations of the Study 186
5.7 Summary 188
CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS 189
6.1 Conclusion.....189
6.2 Public Health Implications 191
6.2.1 Individual-level factors in the SEM 191
6.2.2 Organizational-level factors in the SEM 191
6.3 Recommendations 192
6.3.1 Individual-level factors in the SEM 192
6.3.2 Interpersonal-level factors in the SEM..... 193
6.3.3 Organizational-level factors in the SEM 194
6.3.4 Community-level factors in the SEM..... 195
6.3.5 Policy-level factors in the SEM..... 195
6.4 Suggested Future Directions for Researchers 196
Bibliography.....198
Appendix 1: Ethics approval 220
Appendix 2: Official Letter to the Director of Gombak District Health Office (Malay)....222
Appendix 3: Participant information sheet in English 223
Appendix 4: Participant information sheet in Malay 225
Appendix 5: Consent Form in English.....228

Appendix 6: Consent form in Malay.....229
Appendix 7: Interview guide for T2DM women 230
Appendix 8: Interview guide for spouses.....232
Appendix 9: Interview guide for medical officers 233
Appendix 10: Interview guide for nurses.....235
Appendix 11: Research Participant Details.....236
Appendix 12: Research Participant Details.....239
Appendix 13: Checklist for Non-participant observation 240
Appendix 14: Findings from the checklist.....242
Appendix 15: Clinic and interview setting.....244

List of Figures

Figure 1.1: Distribution of health facilities in Malaysia 8
Figure 1.2:Causes of matenal death (3 yearly) 1991 - 2012 11
Figure 1.3: Maternal deaths by family planning utilization in Malaysia from 2006 to 2011 11
Figure 2.1: Prevalence of diabetes among adults in selected countries 22
Figure 2.2: Prevalence of diabetes among adults more than 18 years old and above 23
Figure 2.3: Facilities at which patients diagnosed with diabetes seek treatment 25
Figure 2.4: Availability of family planning services in Malaysia 31
Figure 2.5: Flow chart of pre-pregnancy care at primary care level 34
Figure 2.6: The Socio Ecological Model 52
Figure 2.7: Diagrammatic illustration of conceptual framework 55
Figure 3.1: Location of Gombak in Selangor 60
Figure 3.2: Location of primary healthcare facilities in Gombak District 62
Figure 3.3: Flowchart of participant recruitment process 68
Figure 3.4: Coding tree diagram A 85
Figure 3.5: Coding tree diagram B 86
Figure 4.1: Clinic work flow for diabetes patients 96
Figure 4.2: Challenges discussing family planning at primary healthcare facilities 98
Figure 4.3: Themes on factors influencing family planning utilization among T2DM women 161
Figure 4.4: Themes for improving family planning services 162
Figure 5.1: Factors influencing family planning utilization among T2DM women 165
Figure 5.2: Suggestions to improve family planning services by the providers 176

List of Tables

Table 1.1: WHO Medical Eligibility Criteria for Contraceptive Use (2015) 4

Table 1.2: Total patients attendance at public and private primary care clinics in Malaysia in 2009, 2011 and 2013 9

Table 1.3: Contraceptive Prevalence Rate (CPR) in Selected Countries (2005-2010) 12

Table 2.1: Summaries on Literatures on Factors Influencing Family Planning Utilization 48

Table 3.1: Total Diabetic Patients Attendance at Primary Healthcare Clinics in Gombak District, 2016 61

List of Abbreviations

BPKK : Bahagian Pembangunan Kesihatan Keluarga

DHO : District health office

DM : Diabetes Mellitus

IDI : In depth interviews

KK : Klinik Kesihatan

KKM : Kementerian Kesihatan Malaysia

MCH : Maternal child health

MOH : Ministry of Health

OPD : Outpatient department

SEM : Socio ecological model

T2DM : Type 2 Diabetes Mellitus

List of Appendices

Appendix 1: Ethical approval 219
Appendix 2: Official letter to Director of Gombak District Health Office 221
Appendix 3: Patient information sheet (in English) 222
Appendix 4: Patient information sheet (in Malay) 224
Appendix 5: Consent to participate in research form (English version) 227
Appendix 6: Consent to participate in research form (Malay version) 228
Appendix 7: Interview guide for Type 2 Diabetic Mellitus women 229
Appendix 8: Interview guide or spouse 231
Appendix 9: Interview guide for health care providers-doctors 232
Appendix 10: Interview guide for health care providers-nurses 234
Appendix 11: Research participant details Type 2 Diabetic Mellitus 235
Appendix 12: Identification form for healthcare providers 238
Appendix 13: Checklist for non-participant observation 239
Appendix 14: Findings from the checklist 241
Appendix 15: Common setting in clinic 243

Operational Definitions

Family planning- WHO defines family planning to as modern contraceptive or traditional techniques to limit or spacing in pregnancies. WHO mentions that family planning allows couples to attain their desired number of children and determine the proper spacing of pregnancies (WHO, 2018)

Family planning service utilization- The extent to which people are making use of whatever services are already available in the community or at organization. In this study utilization refers to women who make practical use of family planning services (Allen, 1998, p. 710).

Family planning services- A conscious, deliberate process of determining the number and interval between the children one bears (Shryock & Siegel, 1998, p. 30). Educational, comprehensive medical or social activities which enable individuals to determine freely the number and spacing of their children and to select the means by which this may be achieved. Family planning services are available free of charge at all public health facilities on a daily basis.

Health care providers-Individual who provides preventive, curative, promotional or rehabilitative health care services in a systematic way to people, families and communities. For this research, healthcare providers referred to those who are working in public sector and involved in the care of patients with Type 2 Diabetes Mellitus (doctor and registered nurse)

Conference Proceedings

1. Poster entitled "Healthcare providers' perspectives on factors influencing family planning utilization among Diabetes Mellitus Type 2 women in Gombak District- a Qualitative Study" was presented at the Asia Pacific Conference of Public Health in Kuching (10^{th} Sept till 13^{th} Sept 2017).

2. Poster entitled "A qualitative study on healthcare providers' perspectives on factors influencing family planning services among Type 2 Diabetes Mellitus in reproductive aged women." was presented in AHLA from 10^{th} to 12^{th} November in University Malaya, Kuala Lumpur.

CHAPTER 1: INTRODUCTION

1.1 Introduction

The first chapter provides background information related to the issues surrounding the utilization of family planning methods among type 2 diabetes mellitus (T2DM) women, which is the concern of this study. It also includes the problem statement, study rationale, research questions and objectives and outline of the thesis. This thesis project arose from several phenomena involving public primary health care facilities. Based on feedback related to the utilization of family planning methods among the type 2 diabetes mellitus (T2DM) women and the problems encountered at the primary care level obtained from healthcare providers, the researcher believes that the utilization of family planning among diabetic women is influenced by a complex interaction of many factors at the individual, social and service delivery levels.

One of the particular issues of interest to this research is the generally negative perceptions that T2DM women seem have about family planning. Therefore, the research study presented in this thesis was developed to understand why T2DM women do not utilize family planning methods despite knowing about the potential complications and pregnancy outcomes. In addition, it is becoming more evident that the issues underlying uptake of family planning among T2DM women have yet to be explored especially in regards to how the T2DM women interact with the healthcare providers or the system and how T2DM women come to decision about family planning.

1.2 Background

This section provides a brief overview of the context of the study. In addition, it provides an overview of the family planning programmes that are in place in primary healthcare facilities. This information provides a valuable insight for medical experts

involved in providing healthcare to women at reproductive age who have T2DM and for policy makers who are responsible for the improvement and development of national programmes.

1.3 Family planning

The term family planning refers to the use of modern or traditional contraceptive techniques to limit or space in pregnancies (WHO, 2018). Family planning allows couples to attain their desired number of children and determine the proper spacing of pregnancies. It requires that women and their spouses anticipate their desired family size. Importantly, family planning is also one of the keys to slowing down unsustainable population growth and the resulting impacts on the economy, the environment and national development efforts (WHO, 2018). In the context of this study, the term family planning methods refers to modern methods such as oral contraceptive pills, injectable contraceptives, intra uterine contraceptive devices and the contraceptive implant. In this study, the terms family planning and contraception are used interchangeably.

1.3.1 Benefits of family planning

Modern family planning has been proven to be the most cost-effective intervention available in healthcare facilities as it brings a wide range of benefits. In general, the main aim of utilizing family planning is to prevent and reduce pregnancy related health risks. Pregnancy results in physiological changes in the body and it has a direct impact on women's health. In the case of T2DM women, the use of highly effective reversible family planning helps them to retain their health by delaying pregnancy until their sugar level is well controlled (Schwarz et al., 2012). It is evident that by utilizing family planning methods, the woman herself is able to gain benefits such as restoring her own health, being able to spend quality time with her family and maintain economic stability. This improves her quality of

life and enables her to have a planned pregnancy and a better outcome. Family planning is also one of the important elements in determining a woman's health status in regards to morbidity and mortality rates (WHO, 2018). Family planning in women with T2DM is an important issue mainly because it has been proven that the pregnancy outcome both for the foetus and for the mother depends on glycaemic control before conception and right up to delivery (Nikolov, Dimitrov, Kolarov, Todarova, & Mekhandzhiev, 2005). Moreover, family planning empowers people and enhances education, as it enables couples to make informed choices about their sexual and reproductive health. It also gives greater opportunities to women to gain an education and participate in society, which increases her family's economy status. It also gives their children the chance to get proper attention and have their needs met before the next child is born. In addition, it reduces the hospitalization stay and cost, reduces absenteeism in the workplace and increases a country's economy prosperity (Nachum, Ben-Shlomo, Weiner, Ben-Ami, & Shalev, 2001).

1.3.2 Types of family planning

According to the World Health Organization (WHO), family planning is defined as the "practice of attaining the desired number of children and intervals between births by means of contraception or voluntary sterilization"(WHO, 2018). Avoiding unintended pregnancy should be an integral part of the T2DM education offered by the healthcare providers at healthcare facilities. Also, the choice of modern family planning should be made on the basis of the individual woman's level of risk in terms of complications and also on preference (Robinson, Shawe, & Nwolise, 2017). The choosing of a safe and reliable modern method of family planning for T2DM woman needs careful consideration and should consider the WHO *Medical Eligibility Criteria for Contraceptive Use* (Table 1.1).

Table 1.1: WHO Medical Eligibility Criteria for Contraceptive Use

Category	With clinical judgment
1	Use method in any circumstance
2	Generally use method
3	Use of method not usually recommended unless other more appropriate methods are not available or not acceptable
4	Method not to be used

Source: WHO Medical Eligibility Criteria for Contraceptive Use; Geneva (2015)

Over the years, family planning methods have advanced from the traditional to the modern. Each of these methods has its own advantages and disadvantages. T2DM women are mostly advised to utilize modern family planning methods as compared to natural or traditional methods. There is a wide range of family planning methods that the T2DM woman can choose from, in accordance with the medical advice received from the healthcare providers. According to the WHO, they include:

- Oral contraceptives:

  These are also referred to as the birth control pill and may contain a combination of the hormones oestrogen and progestin or progestin only. They prevent fertilization by thickening the mucus produced by the cervix.

- Barrier methods:

  These are used only when having sexual intercourse. This category include the condom, diaphragm, spermicide and cervical cap. These methods are intended to prevent sperms from entering the uterus.

- Injectable contraceptives:

  These contain progestin that acts by thickening the cervical mucus, which makes it difficult for sperm to reach and fertilize the egg.

- Intra uterine contraceptive devices:

These are considered safe and long-lasting for most women these days and are shaped like a 'T'. They fit inside the uterus and prevent pregnancy by stopping sperm from reaching the egg.

- Sterilization:

  This is a procedure that can be performed on both women and men. In women it is called a bilateral tubal ligation, which is a procedure that blocks or closes the fallopian tubes. In men, it is called a vasectomy which blocks the tube which carries the sperm.

1.4 Types of diabetes

There are three main types of diabetes; type 1 diabetes mellitus (T1DM), type 2 diabetes mellitus (T2DM), and gestational diabetes mellitus (GDM). Type 1 diabetes mellitus is also known as juvenile onset diabetes caused by an autoimmune reaction, where the body's defence system attacks the insulin-producing beta cells in the pancreas resulting in the need for long term treatment with daily insulin injections. Type 2 diabetes mellitus is also known as adult onset diabetes and can occur at any age. Many people with T2DM are unaware of their illness until some signs and symptoms begin to manifest. The last type of diabetes, GDM is diagnosed during pregnancy and usually disappears after pregnancy. People with GDM have a high risk of developing T2DM later (International Diabetes Federation, 2013). It is known that T2DM is strongly associated with diet, lifestyle (such as physical inactivity and unhealthy diet), genetic factors and a family history of diabetes. Uncontrolled T2DM leads to complications in early adulthood that place a significant burden on the family and society (International Diabetes Federation, 2013).

1.4.1 Impact of type 2 diabetes mellitus on pregnancy

There are pregnancy complications for women with any type of diabetes. However, studies have shown that T2DM in pregnancy presents a particularly serious problem. During

pregnancy, there is an increased risk of multiple miscarriages and developing micro as well as macro complications due to poor glycaemic control. Due to physiological and pathological changes, the risk of developing pre-eclampsia and hypertension is also high (Ju, Rumbold, Willson, & Crowther, 2008).

The health issues related to the baby are also of concern as there is high risk of perinatal mortality. Uncontrolled blood glucose during pregnancy can lead to foetal anomalies and cause excess size and weight. This then leads to problems at delivery, injuries to the child and mother and hypoglycaemia in the new born after delivery (Clausen et al., 2005). According to Barker's hypothesis, in addition to external factors such as a sedentary lifestyle and diet, there is also the chance of children born to T2DM women developing obesity and metabolic syndrome (Dover, 2009). In addition there is higher risk of children developing T2DM later in life when they have been exposed to high blood glucose in the womb for a long period of time (International Diabetes Federation, 2013; Ju et al., 2008; Temple, Aldridge, & Murphy, 2006). Therefore, to minimize complications in women with T2DM detailed planning and close monitoring is required, which starts before and during pregnancy as well as post pregnancy. In addition, improving family planning utilization is an essential means of protecting the wellbeing of both the women and their children.

As for rate of hospitalization among pregnant T2DM women, it is high in most countries (Nachum et al., 2001). Also, the rate of operative deliveries is increasing due to women with diabetes undergoing caesarean section. In diabetic pregnancies, the caesarean section rate is higher than that of vaginal deliveries 14.7 percent and 8.5 percent respectively (Hussein, Taher, Singh, & Swee, 2015). This difference in the rates is not surprising as many gynaecologists suggest that women with diabetes undergo operative deliveries to reduce traumatic procedures.

Malaysia spends about RM 14.5 million per annum on diabetes care and this is a huge economic burden for the country (Ibrahim et al., 2014). This figure includes the cost of medical services, special education and lost productivity. For T2DM mothers, the maternal, foetal and neonatal costs increase due to hypoglycaemia, infections and anomalies. It has been estimated that the annual cost of both modern contraception and maternal and new born care is about 53.5 billion US dollars (USD) in developing countries globally. However, investing in family planning services could result in savings of USD 6.9 billion per annum compared with investing in maternal and new born healthcare alone (Miller & Valente, 2016). It has been argued that utilization of family planning can reduce the cost burden via proper care before and after conception, especially in respect of hospitalization and family income (Clausen et al., 2005; Galerneau & Inzucchi, 2004).

1.5 The healthcare system in Malaysia

Economic development and living standards in Malaysia have improved over the past 20 years, particularly in respect of social infrastructure, which also includes healthcare facilities. The Malaysian healthcare system is a dual-tiered health system consisting of public universal healthcare and a private healthcare system (Quek, 2009). The public universal healthcare system is funded by the government and aims to provide low-cost universal, comprehensive services that are accessible to all legal residents of Malaysia (Yu, Whynes, & Sach, 2008). Public healthcare delivery is the responsibility of the Ministry of Health (MOH) of Malaysia, a major government agency. The Ministry of Health provides a wide range of healthcare services through a sophisticated and integrated network of programmes. Government funded healthcare encompasses curative, preventive, rehabilitative, promotive, and regulatory activities (Yu et al., 2008).

There has been a tremendous increase in both public and private healthcare facilities in recent years especially in regards to the number of healthcare facilities built by the Ministry of Health, as shown in Figure 1.1. This increase has resulted in a higher access rate of 88 percent for the population living within 5 kilometre of a healthcare facility.

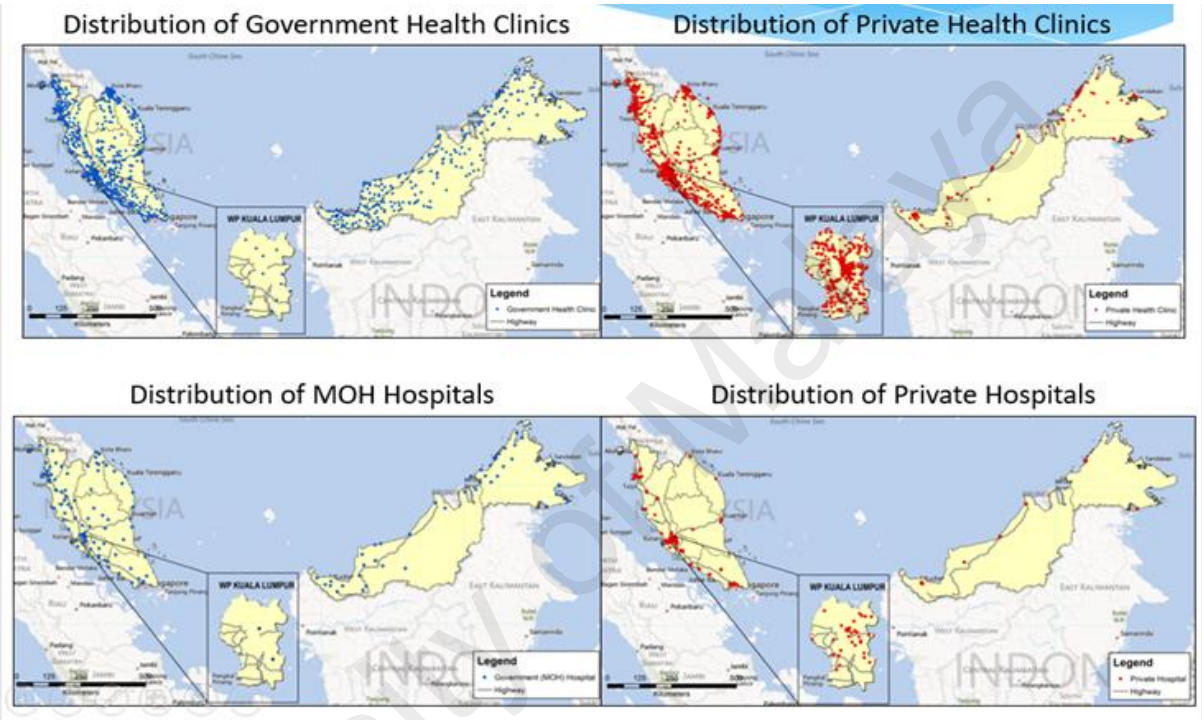


Figure 1.1: Distribution of health facilities in Malaysia

Source: Mapping Study of Health Facilities and Service, IKU MOH, 2013

1.5.1 Primary care in Malaysia

The terms "primary care" and "primary healthcare" are similar and are used often interchangeably. Primary care describes services delivered to individuals, while primary healthcare refers to the system level of provision which includes both services delivered to individuals (primary care services) and population-level functions (Muldoon, Hogg, & Levitt, 2006; Noh, 2011). There is increasing consensus that a stronger health systems is the key to achieving improved health outcomes. Many efforts have and are being undertaken around the globe especially in low-income and developing countries to achieve this goal. The Alma Ata declaration of 1978 promoted a comprehensive approach to improve health with a

strong emphasis on building health systems "from the bottom up" through primary healthcare (Travis et al., 2004). However, to achieve a measurable outcome, it was necessary to focus on a cost-effective interventions through primary healthcare.

In this study, the term primary care is used to refer to healthcare services provided by public primary healthcare clinics. Primary healthcare clinics consist of a multidisciplinary team that includes family medicine specialists (at selected clinics), medical practitioners, physiotherapists, occupational therapists, nurses, assistant medical officers, nutritionists, and dieticians. In terms of consultation fee, it costs patients only one Ringgit Malaysia (RM 1) for each visit. Moreover, senior citizens (over the age of 60) are exempted from payment as a special privilege when seeking treatment at public primary care clinics. In terms of the number of patients seeking treatment at primary care clinics, it seems that the number of patients seeking treatment in public primary care has increased many times more than the number seeking treatment in private primary care in recent years (Table 1.2).

Table 1.2: Total patients attendance at public and private primary care clinics in Malaysia in 2009, 2011 and 2013

Year	Public primary care clinics	Private primary care clinics
2009	27,041,812	3,174,124
2011	28,656,444	3,505,591
2013	33,379,603	3,867,668

Source: Health fact 2010, 2012 & 2014

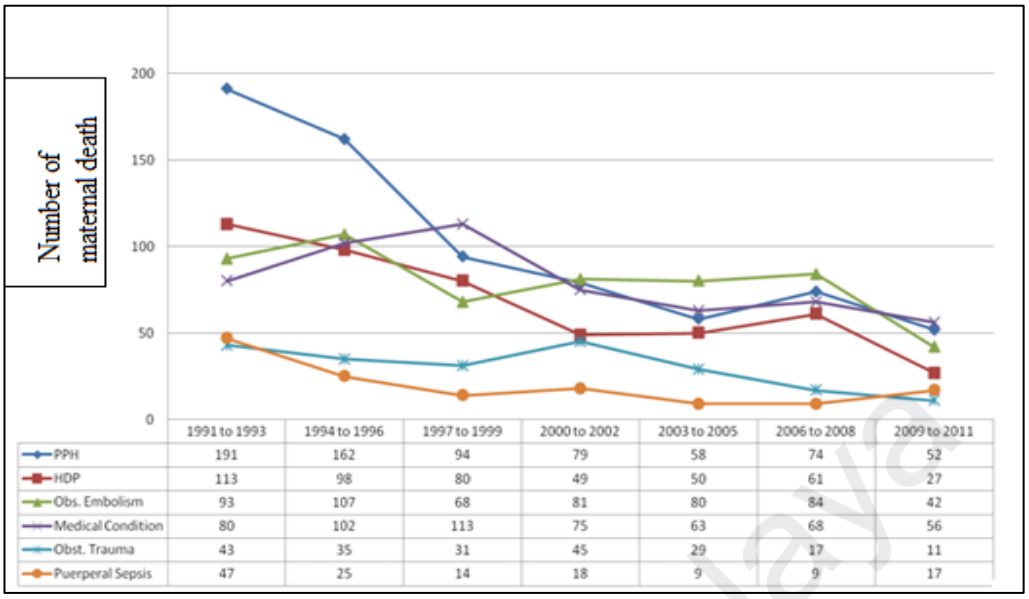
It is extremely important that a well-established system is in place for women with T2DM in order to ensure that they have a planned and safe pregnancy. The current Malaysian primary healthcare system orientated towards the care of acute or chronic illness and maternal and child health (MCH). This has led to lack of continuum of care especially for those in need such as T2DM women of reproductive age. Constraints have been identified at different levels, but focusing on the healthcare delivery system specifically these constraints include,

provider behaviour towards clients, physical infrastructure, human resource availability, quality of care and supply systems.

1.6 Problem Statement

The prevalence of T2DM among women of reproductive age is increasing worldwide, and in years to come it is expected to increase among the younger age group in most societies (Wild, Roglic, Green, Sicree, & King, 2004). The priority aims of UN Secretory General's *Global strategy for women's and children's health (2010–2015)* was to prevent 33 million unwanted pregnancies between 2011 and 2015. This included saving the lives of women who were at risk of dying of complications during pregnancy and childbirth (McIntosh & Finkle, 1995). Indirect causes of maternal deaths have remained steady at 12.2 deaths per 100 000 live births in 2006 compared with 13.3 deaths per 100 000 live births in 2013 (McArthur, 2014). It has also been estimated that women die from preventable causes related to pregnancy and childbirth and that about 99 percent of deaths occur in developing countries (McArthur, 2014).

A confidential enquiry into maternal deaths in Malaysia found that almost 70 percent of pregnant women who died between 2001-2005 never practised any form of family planning method (Ravichandran & Ravindran, 2014). Moreover, medical associated illnesses remains among the top five leading causes of maternal deaths in Malaysia (Figure 1.2). It is also alarming that from 2006 to 2011 more than 50 percent of maternal deaths were among women who did not utilize family planning (Figure 1.3).



	1991 to 1993	1994 to 1996	1997 to 1999	2000 to 2002	2003 to 2005	2006 to 2008	2009 to 2011
PPH	191	162	94	79	58	74	52
HDP	113	98	80	49	50	61	27
Obs. Embolism	93	107	68	81	80	84	42
Medical Condition	80	102	113	75	63	68	56
Obst. Trauma	43	35	31	45	29	17	11
Puerperal Sepsis	47	25	14	18	9	9	17

Figure 1.2: Causes of maternal death (3 yearly) 1991 - 2011

Source: Reports on the Confidential Enquiries into Maternal Deaths in Malaysia 2009 – 2012

Family planning	2006		2007		2008	
	n	%	n	%	n	%
Ever user	30	23.6	25	18.4	24	18.3
None user	68	53.5	86	63.2	82	62.6
Don't know	29	22.9	25	18.4	27	19.1
Total	127	100.0	136	100.0	133	100.0

Family Planning	2009		2010		2011	
	n	%	n	%	n	%
Ever User	38	24.7	29	19.9	40	30.8
None user	114	74.0	86	58.9	65	50.0
Don't know	2	1.3	31	21.2	25	19.2
Total	154	100.0	146	100.0	130	100.0

Figure 1.3: Maternal deaths by family planning utilization in Malaysia from 2006 to 2011

Source: Report on Confidential Enquiries on Maternal Deaths, 2009 - 2011

In 2010 a Millennium Development Goal report noted that the contraceptive prevalence rate (CPR) reached a plateau in the nineties. In 2010, the CPR in Malaysia for all methods was 55 percent and for modern methods is 35 percent (Alkema, Kantorova,

Menozzi, & Biddlecom, 2013). According to another study, only half of the reproductive age group in Malaysia use modern contraception, and the most popular option is the oral contraceptive pills (Ahmad et al., 2010). These figures are very low compared to those in neighbouring countries (Najimudeen & Sachchithanantham, 2017). Also, between 2005 and 2010, several countries including Sri Lanka, had better a CPR than Malaysia even though Sri Lanka was not politically or economically stable during that period (Table 1.3).

Table 1.3: Contraceptive Prevalence Rate (CPR) in Selected Countries (2005-2010)

Location	**Percentage**
Global	63.0
Portugal	86.8
United Kingdom	84.0
United States of America	78.4
Thailand	77.5
Sri Lanka	68.3
Singapore	55.1
Malaysia	32.3

Source: UNFPA. International Conference on Population and Development (2014)

Family planning utilization in Malaysia, especially among women with pre-existing illness remains low, which results in unplanned pregnancies and unwanted births. The risk in pregnancy is doubled in women with pre-existing medical illness and experience medical complications during pregnancy receive the medical care they and their new-borns need. Also, the highest number of maternal deaths occurred among women who did not use the modern methods in Malaysia (Ravichandran & Ravindran, 2014).

The National Health and Morbidity Survey conducted in Malaysia in 2006 reported an increasing trend in the prevalence of both hypertension and T2DM among women aged 45 years and younger as compared to ten years before (Letchuman et al., 2010). This finding is supported by the later data on known T2DM, which shows that its prevalence is higher in females at 9.1 percent and that the difference in gender is statistically significant (National Health and Morbidity Survey, 2015). In contrast, no significant difference between genders is observed for the prevalence of known hypertension (National Health and Morbidity Survey, 2015). Also according to the latest report from the National Obstetrics Registry, Malaysia, in 2010, the local incidence rate of diabetes in pregnancy stood at 9.9 per cent. Family planning health initiatives for T2DM women have been proven to be important for pregnancy outcomes both for the foetus and the mother and they depend on glycaemic control before conception right through to delivery (Yehuda, 2016). Nevertheless, despite the numerous initiatives that have been conducted throughout the nation, ranging from availability of pre pregnancy counselling and free family planning methods, the number of non-users of family planning continues to rise (Kasim, Draman, Kadir, & Muhamad, 2016; Talib, 2016). The above findings are alarming, particularly with the increasing trend of younger women with T2DM who face a greater reproductive risk. Thus it is important to explore and gather information on this issue to gain a better understanding on the reproductive health of this group of women. Such studies could explore how T2DM women and their spouse engage with healthcare providers when utilizing family planning, especially as there is limited evidence available on family planning utilization among T2DM women in local setting. There are several factors that have been noted to be associated with the underutilization of family planning methods, including the type of health facility attended, having other children, being in an older age group and having a lower education level and which could be considered in research on this area (Manaf, Ismail, & Latiff, 2012).

1.7 Study Rationale

Type 2 diabetes mellitus is a significant and growing public health burden. Malaysia will face a tremendous health and economic burden in the near future if no changes are made to address the problem. Therefore, this study focuses on T2DM women, who constitute 184 million of the global population (International Diabetes Federation, 2013). A previous study in United States (US), noted that visits made by diabetic women of reproductive age are less likely to include contraceptive counselling and notably, T2DM women under 25 years were more likely to underutilize contraceptive counselling (Schwarz, Maselli, & Gonzales, 2006). Although a study in Malaysia by Manaf et al. (2012) looked into whether women who received medical treatment in health clinics were more likely not to use family planning methods, it did not explore specifically explore perspectives of T2DM women, their spouses and healthcare providers on family planning utilization and services. The dynamics of reproductive health and specifically of family planning cannot be properly understood if the data collected exclusively from T2DM women whereas exploring the experiences of spouses and healthcare providers provides an opportunity to find ways for these three groups to work together to produce a successful pregnancy opportunities outcome. Family planning utilization relies greatly on these three parties, hence research needs to be conducted to develop a greater understanding of the roles and perspectives of these parties. A more in depth understanding of the factors influencing family planning utilization will allow primary healthcare providers to implement appropriate programmes and enhance the quality of family planning service delivery.

A large number of studies advocate the involvement of men in reproductive health issues. For instance studies have shown that men's involvement in counselling increases contraceptive usage, their effectiveness and long-time utilization (Ijadunola et al., 2010).

These findings show that men have a significant role to play as a decision maker together with their partner in the practice of family planning. However, in Malaysia, their role as potential clients has not been highlighted in our healthcare services, even though efforts have been made to include them in promoting shared responsibility in family planning.

Evidence based guidelines have been developed for counselling women of reproductive age who have T2DM about the need for family planning and pre conception care. These guidelines provide an opportunity for couples and healthcare providers to make appropriate plans before pregnancy occurs. However, the ways in which the interpersonal relationships between a T2DM woman, her partner and healthcare providers may determine a successful pregnancy and health outcome, which are difficult to measure are yet to be explored. In addition, there is a lack of studies that look at the role of healthcare providers in providing family planning in the Malaysian healthcare system. The perceptions healthcare providers are equally important in planning prospective interventions and future programmes. In addition, research anticipating the perceptions from the healthcare providers in public primary healthcare facilities is less in Malaysia. It is therefore anticipated that analysis of the data on the views of these three parties can facilitate an increasing family planning utilization among the targeted women.

This study is methodologically different from most of studies in this area as it intends to utilize a qualitative study design. It is envisaged that exploring the views and perceptions on family planning held by T2DM women, spouses and healthcare provider's as expressed their own words will to a better understanding of this issue than merely focussing on the numbers alone. This approach will also provide enriched data that could further strengthen Malaysia's current family planning services at primary healthcare facilities. This study therefore aims to contribute to a better understanding on family planning utilization by

providing a detailed account of the perceptions among T2DM women, spouses and healthcare providers at primary healthcare centres in Malaysia. An understanding of the "why" and the "how", supported by evidence, will provide valuable insights not only for medical experts in the field, but also for policy makers who are responsible for planning feasible interventions for better family planning and the delivery of care at the primary level.

The findings of this study will enable T2DM women and their spouses to become more knowledgeable and confident in making decisions that are related to their specific health issues. Although the current healthcare system has provided family planning services for decades, not many T2DM women are prepared to utilize those services. This leaves them vulnerable to pregnancy complications related to T2DM. Therefore a strengthening of the current healthcare system can offer T2DM women opportunities to understand their health needs, and to practise informed decision-making in regards to their reproductive health.

1.8 Research Aim, Objectives and Questions

Based on the above problem statement, three sets of specific objectives and six research questions were developed to achieve the main aim of the study

1.8.1 Research aim

The main aim of this study is to understand and explore the factors influencing family planning utilization among T2DM women, spouse and healthcare providers in Gombak District, Selangor Malaysia.

1.8.2 Research objectives

In line with the research aim, the general objective of this study is to identify the factors that influence family planning utilization among type 2 diabetes mellitus women in Gombak District. To this end, the researcher set the following specific objectives:

a) Women with T2DM

-To elicit T2DM women's perceptions on family planning

-To determine the factors that influence T2DM women's choice of family planning method

- To identify family planning decision-making among T2DM women

b) Spouses

- To elicit spouses' perceptions on family planning methods

-To determine the factors affecting spouses' to family planning utilization

-To identify how spouse make family planning decisions

c) Healthcare providers

-To elicit healthcare providers' perspectives on family planning utilization

-To explore the issues affecting the utilization of family planning services from the healthcare providers' standpoint

-To elicit healthcare providers' views on ways to increase the utilization of family planning services among T2DM women

d) To identify important trends in family planning documents

1.8.3 Research questions

To achieve the above mentioned objectives, two questions (RQ1, RQ2 and RQ3) were formulated to understand family panning utilization among T2DM women in primary healthcare facilities while an additional two questions (RQ4,RQ5 and RQ6) were formulated to understand family planning utilization among T2DM women's spouses in primary healthcare facilities and a further two questions (RQ7,RQ8 and RQ9) were formulated to understand the family planning services and suggestions to increase its services offered by

healthcare providers. Lastly, RQ10, were formulated to understand the trends and documentation of family planning utilization in primary healthcare facilities.

RQ1: What are the T2DM women perceptions on family planning?

RQ2: What are the underpinning factors that influence family planning utilization among T2DM women?

RQ3: How do T2DM women make decisions on family planning utilization?

RQ4: What are the spouses' perceptions on family planning?

RQ5: What are the factors that influence family planning utilization among T2DM spouses?

RQ6: How do spouses make decisions on family planning utilization?

RQ7: What are the healthcare providers' perceptions on family planning?

RQ8: What are the factors influencing healthcare providers' provision of family planning services in primary healthcare facilities?

RQ9: What are healthcare providers' suggestions' to increase family planning utilization and improve services in primary healthcare facilities?

RQ10: What are the trends of family planning utilization among T2DM women in healthcare facilities?

The answers to the above research questions will enable the exploration of the factors influencing family planning utilization from different perspectives and fulfil the objectives of the study.

1.9 Course of Research Development

The motivation to embark on this study arose from several observations and discussions. The researcher's previous working background had an influence on and played a crucial role throughout the research process. As time passed by, the researcher developed a special interest in MCH unit especially in issues related to pregnancy and birth outcomes. As a healthcare professional involved in daily counselling and listening to clients, the researcher was able to gain an understanding of the needs and the hindrances that clients encountered in utilizing the available services. Also, joint work with other units such as outpatient department (OPD) and non-communicable disease clinic enabled the researcher to become familiarized with the health system. Based on this experience, it became apparent that there was a lack of continuity of care for high risk women of reproductive age. This discovery motivated the researcher to undertake an in depth qualitative research study focussing on T2DM women, spouses and healthcare providers in order to attempt to determine the factors influencing family planning utilization in the context of the Malaysian healthcare system.

1.10 Thesis Outline

This first introductory chapter has provided background information on family planning, the health impact of T2DM on pregnancy and the programmes related to family planning in Malaysia. It also presented the study rationale, the research aim, objectives and question, the course of research development and thesis outline. The remainder of the thesis consists of the following chapters:-

- Chapter two discusses the epidemiology of T2DM and the nature of family planning among T2DM women in global and Malaysian context and factors associated with

family planning utilization. The chapter also presents the conceptual framework of family planning utilization among T2DM women developed for this study.

- Chapter three which describes the methodology adopted in this study including the research methods, data collection procedures and analysis strategies.
- Chapter four presents the findings derived from the analysis of the collected data. These findings are organised based on the social ecological model in order to explain the data derived from the study participant in greater detail.
- Chapter five contains a discussion of the findings and highlights the strengths and limitations of the study.
- Chapter six, which is the last chapter concludes the study by highlighting the public health implications of the research findings, making some recommendations for managers and policy makers, and offering some suggestions' for future research directions for this area of study.

1.11 Conclusion of Chapter One

The increasing number of T2DM women in the reproductive age group and their underutilization of family planning methods is an important public health concern because of the potential for pregnancy related complications in this group. Therefore, in order to address this issue a qualitative study design was used to collect data from T2DM women, their spouse and their healthcare providers in order to explore the perceptions and factors affecting family planning utilization among T2DM women.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter is divided into eight sections. The first section introduces the chapter. The second section provide an overview of type 2 diabetes mellitus (T2DM) including the epidemiology of T2DM in the global as well as Malaysian context, as well as the types of family planning. The third section explores the prevalence of family planning and the fourth section explains the transitions in the of family planning programme in Malaysia. The fifth section explains the factors influencing family planning utilization and examines the previous studies on these issues. Then section six highlights the research gaps identified in the previous studies and section seven explains the theoretical and conceptual framework. Section eight provides a summary of the chapter.

The aim of this study is to identify the factors influencing family planning utilization among T2DM women. Therefore for this literature review the medical and health databases (among them, PubMed, Web of Science, Google scholar and Science Direct) were searched in order to find relevant studies on family planning utilization. In this study, both qualitative and relevant quantitative studies were included in the review as they were seen as complementary to each other. The review focused on studies related to family planning among diabetic women and the involvement of the spouse and healthcare providers in this regard.

2.2 Type 2 Diabetes Mellitus

2.2.1 Overview and epidemiology of Type 2 diabetes mellitus

Type 2 diabetes mellitus is a chronic disease affecting millions of adults globally and its's prevalence is estimated to rise in the future. There are currently 110 million people around the world who have diabetes, most of whom have T2DM, and this number is expected

to double in the years to come (Feig & Palda, 2002). The International Diabetes Federation (IDF) stated that the prevalence of T2DM among adults (aged 20 to 79 years) was 6.4 percent in 2011 and predicted that this figure would rise to 7.7 percent by 2030 (Soiferman, 2010). It is anticipated that it will be the seventh highest cause of death by 2030 (Soiferman, 2010). Eighty percent of these deaths occurs in middle and lower income countries (Soiferman, 2010). Additionally, the demographic pattern of T2DM is changing, with a shift to a younger age of onset (International Diabetes Federation, 2013). As elsewhere, countries in the Asia Pacific are fighting an epidemic of obesity, which is linked to T2DM and Malaysia is no exception as about 8.3 percent of the population above 30 years old are obese (Thomas, Beh, & Nordin, 2011). Moreover, there is a concerning increasing in diabetes prevalence among adults in Malaysia when compared to other countries in the Western Pacific region (Figure 2.1).

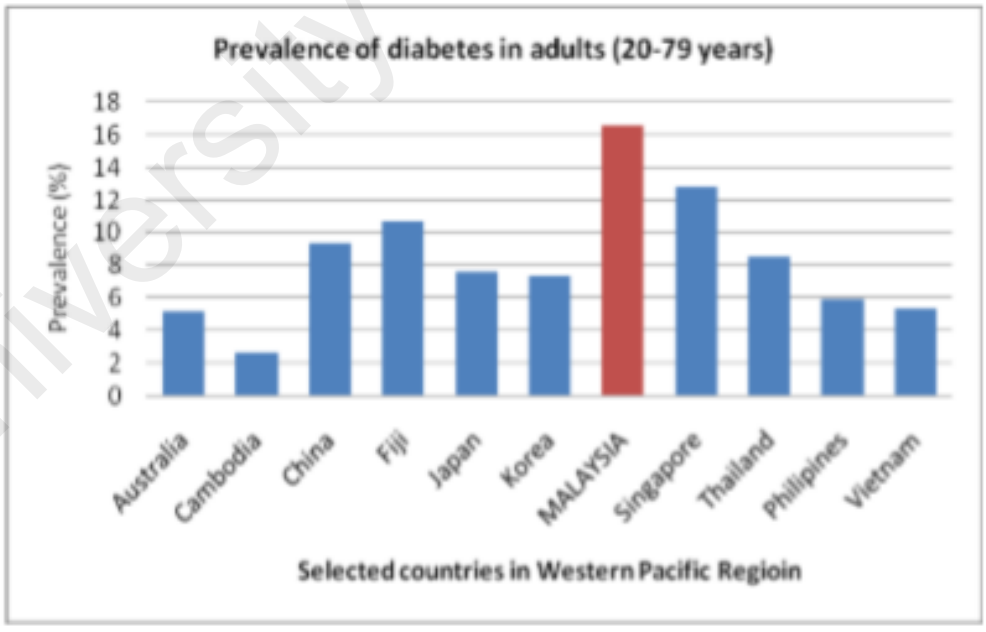


Figure 2.1: Prevalence of diabetes among adults in selected countries

Source: International Diabetes Federation (2014)

In Malaysia, according to the National Health and Morbidity Survey Vol II (2015), it is estimated that 3.6 million adults or 17.5 percent of adult Malaysians have been diagnosed with T2DM, and 1.78 million of them are women. This number is high and it has put Malaysia at the top of the list in the Association of Southeast Asian Nations for T2DM (National Health and Morbidity Survey, 2015). The NHMS (2015) also shows that the prevalence of T2DM (known and undiagnosed) among adults aged 18 years and above was 17.5 percent in 2011 compared to 15.2 percent in 2006 (Figure 2.2). If this trend continues, it is estimated that 1 in 5 people will be affected by T2DM by 2020 (National Health and Morbidity Survey, 2015).

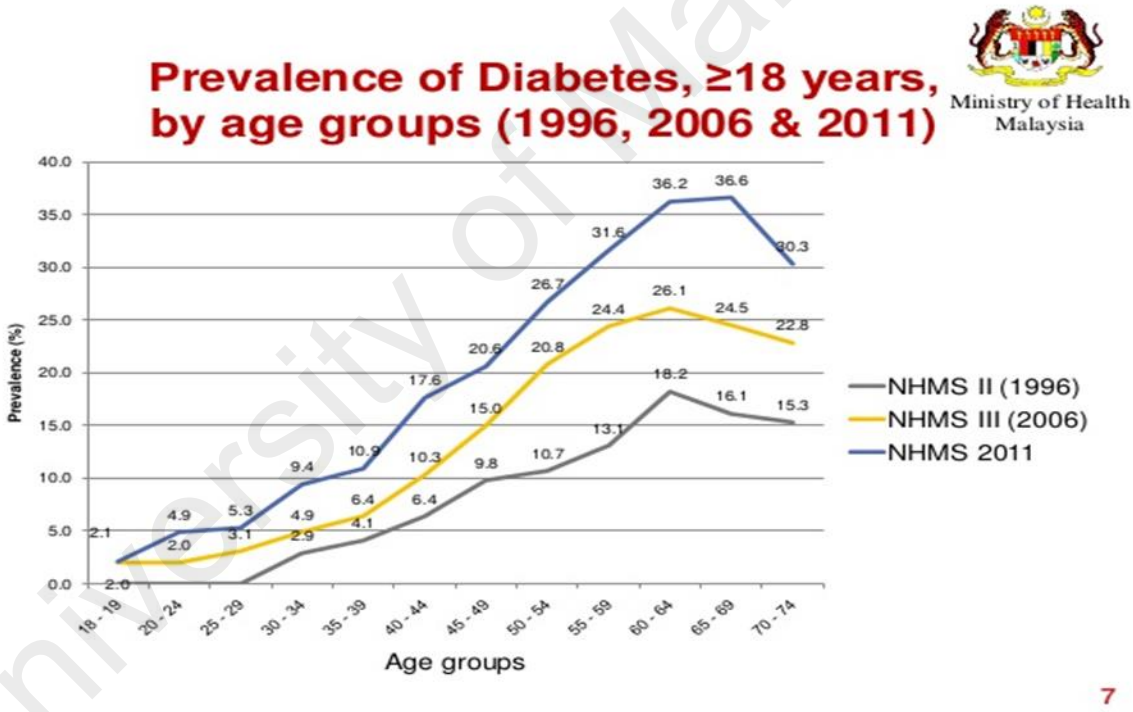


Figure 2.2: Prevalence of diabetes among adults more than 18 years old and above from 1996 to 2011

Source: National Health Morbidity Survey 2015, Ministry Of Health Malaysia

The prevalence of T2DM is slightly higher in urban areas and among women. For instance, the prevalence of known T2DM is higher in women at 9.1 percent compared to men at 7.6 percent (National Health and Morbidity Survey, 2015). Generally, there is also an increasing trend with age, particularly in the 20-24 years old age group and 70-74 years old

age group. Furthermore, the issue of T2DM has become even more crucial issue as Malaysian society is among those also on brink of having a population that primarily leads an unhealthy and sedentary lifestyle, driven by busy working lives and the convenience of fast food outlet.

In terms of financial burden, the lifelong process of T2DM treatment is expensive and burdensome to both patients and government. The IDF estimated that at least USD548 billion was spent worldwide on health expenditures related to diabetes in 2013 (International Diabetes Federation, 2013). In Malaysia, several studies have been conducted at various localities in order to measure the economic burden that T2DM puts on patients, including the cost of outpatient and inpatient treatments. Based on the results, it cannot be denied that the economic burden of diabetes treatment is substantial (Ibrahim et al., 2014; Nachum et al., 2001; Torres & Forrest, 1983). Moreover, it poses a huge economic burden on women of reproductive age group and the impact in terms of productivity loss will become increasingly significant as the years progress. The increment in the number reproductive women with T2DM, highlights the need for appropriate utilization of family planning to ensure not only the health of the mother, but also the productivity of the economy.

2.2.2 Health facilities which patients seek treatment

Primary care practice can be defined as a type of care that offers continuity, comprehensiveness and coordination and that provides high quality medical care for patients with chronic conditions (Whiting, Guariguata, Weil, & Shaw, 2011). In this study, the term ‘primary healthcare’ refers to healthcare services provided at public health clinics that fall under the Ministry of Health Malaysia. Generally, public primary healthcare clinics in Malaysia are headed by a family medicine specialist and staffed by a complement of medical doctors, nurses, medical assistants and laboratory technicians.

It has been reported that almost two thirds of diabetes patients in Malaysia seek treatment at public healthcare facilities (Figure 2.3) while the rest go to private general practioner (GP) or take alternative medicines (Feisul & Azmi, 2013). Primary health clinics in the public sector provide more comprehensive T2DM and family planning services as compared to the private sector. However, public healthcare facilities bear a much higher patient load. Moreover, it is evident from previous studies that, coordination within the primary care sector is lacking especially for patients with chronic illnesses, for instance, there are an increased admissions to hospitals and complications due to T2DM (Mortagy, Kielmann, Baldeweg, Modder, & Pierce, 2010).

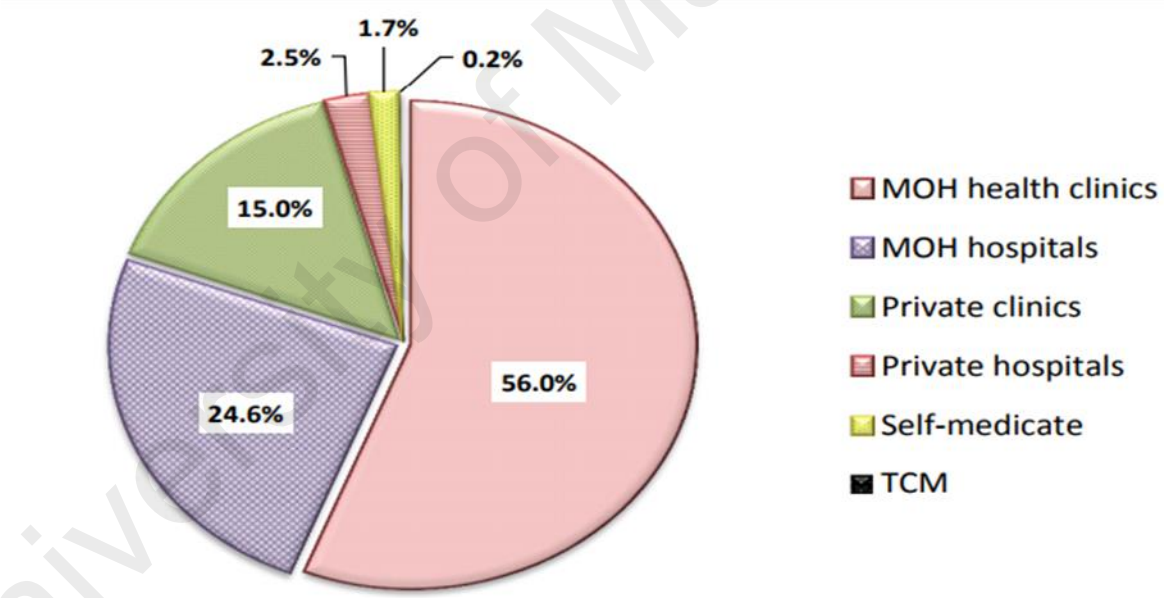


Figure 2.3: Facilities at which patients diagnosed with diabetes seek treatment

Source: National Diabetes Registry, Volume 1, 2009-2012, Ministry of Health

Essentially, a good primary healthcare system must, among other things, provide good access to family planning services. The general goals of such a system should therefore include increasing family planning utilization and a reducing the barriers to such services. In

this regard, it appears the utilization of family planning in primary healthcare facilities among T2DM women should be an important areas of healthcare research.

2.3 Prevalence of Family Planning

Both the International Conference on Population and Development held in Cairo in 1994 and the Fourth World Conference on Women held in Beijing in 1995 emphasized that women's empowerment including their reproductive and sexual rights are the basic tool for development (UNFPA, 2012). From the standpoint of women's reproductive health rights, unmet need is considered as one of the indicators for the violation of such rights and several basic rationales for women's empowerment were proposed. It has also been found that, in developing countries, an estimated 200 million couples would like to delay or stop childbearing but were not using any methods of family planning (UNFPA, 2012). Also, in 2010, 146 million (130–166 million) women worldwide aged 15–49 years who were married did not use any form of family planning method (Alkema et al., 2013).

Over the period 1969 to 1981 the usage of family planning in Thailand among married couples increased tremendously from 15 percent to 60 percent (Chayovan, Hermalin, & Knodel, 1984). This was due to creativity in designing family planning approaches and cooperation between the government and the non-governmental organization, the Population and Community Development Association (PDA) (Chayovan et al., 1984). In Singapore, there was a significant demographic change after the government introduced the "Stop at Two" campaign, which was a campaign aimed at reducing birth rate, as they feared that overcrowding could become a burden on the country (Kanagaratnam, 1968). This mandatory approach by the government, resulted in the promotion of family planning services to such an extent that the country developed into a successful nation. In essence, family planning in Singapore became a subject of law instead of a voluntary choice (Kanagaratnam, 1968). In

the case of Vietnam, reports from World Health Organization (WHO), shows that there was a percentage of family planning utilization among women between the years 2000 to 2008, which reached 79 percent (Attia & Edge, 2017).

The use of contraceptives in Malaysia has stagnated for 25 years and the utilization of family planning other methods remains low, resulting in unplanned pregnancies and unwanted births (Najimudeen & Sachchithanantham, 2017). According to a United Nations Population Fund (UNPF) report, in 2004, in Malaysia the utilization of modern family planning methods was low with only 30 percent of married women between the ages of 15 and 49 years old using them. A study highlighted that, three quarters of women used modern family planning methods for at least two years after delivery, however, the pilot study reported only a cumulative prevalence of family planning utilization, and did not specify whether the results were based on different pregnancy risks (Rosliza & Majdah, 2010). Thus, the actual prevalence of family planning among women with T2DM could be much lower than the cumulative prevalence reported. Studies conducted in Malaysia have revealed that the prevalence of contraception has remained low for some time (Mansor, Abdullah, et al., 2015; Shafei, Shah, & Tengku Ismail, 2012) but research on contraceptive use in women with medical problems remains limited. Yet, pregnancy in women with medical diseases in many instances exposes both the woman and her offspring to definite morbidity and possible mortality risks (Manaf et al., 2012). The low prevalence of contraceptive use among Malaysian women indicates that they have a higher chance of being expose to the risk of an unplanned pregnancy. Evidence on family planning utilization among T2DM women in primary healthcare facilities is also limited. Therefore, an understanding of the factors influencing family planning methods among T2DM women is important as it will contribute

to the health maintenance of women of reproductive age by helping them to avoid an unplanned pregnancy, and any associated complications.

2.4 Transitions in the Family Planning Programme in Malaysia

2.4.1 The National Family Planning Programme

In 1966, family planning services in Malaysia were provided in many states but they were confined to large urban centres. The West Malaysia Family Survey was conducted in 1966 in Peninsular Malaysia and it reported that the contraceptive prevalence rate (CPR) was just merely 8.8 percent (Ahmad et al., 2010). A National Family Planning Programme was launched in conjunction with the first Malaysia Plan in 1966 and an official policy was developed. The new policy involved the implementation of a positive programme for family planning. It was aimed improving maternal and child health (MCH) and reducing the rate of population growth from 3 percent in 1966 to 2 percent by 1985, which was to be achieved by setting targets to increase the number of users of family planning (Ahmad et al., 2010).The National Family Planning Board was established mainly to plan, execute and coordinate all the family planning activities in the country and it began with the provision of clinical contraceptive services mainly in urban areas. Later, the programme was expanded to rural areas in collaboration with primary healthcare services as well as the Ministry of Health in the early 1970s (AK Jain & Jain, 2010).

2.4.2 The evolution of family planning policy

In 1984, the Malaysian government called for a major shift from family planning to family and human resource development (Warren & Ross, 2007). The government recognized the inter linkages between the population and the development process and concluded that a larger population and increased domestic market could be beneficial in terms of achieving national development goals. Thus, the emphasis shifted from family planning

to family development and reproductive health, and thus the existing information, education, and communication programmes were withdrawn (Warren & Ross, 2007). The government's family planning policy was substituted by the National Population Policy and which included the aim of achieving an ultimate population of 70 million by 2100. After this formation, the board was renamed the National Population and Family Development Board (NPFDB). Then, after the 2001 General Election, the NPFDB was placed under the newly created Ministry of Women, Family and Community Development (Jain & Jain, 2010).

2.4.3 Family planning initiatives

The NPFDB has played an important role in informing and educating the public about family planning and its benefits, and has also affected family planning practice (Warren & Ross, 2007). For instance, the NPFDB has highlighted a number of issues that covered all levels of provision from the Ministry to the frontline of clinical practice. These included systematic training to improve the professional skills of delivery attendants and implementation of a monitoring system that include the reporting of maternal deaths through a confidential enquiry system (Warren & Ross, 2007). The board works closely with communities to remove social and cultural constraints, and to improve the acceptability of modern maternal health services, and also to ensure that health services are accessible and that the quality of maternal health services including family planning in all areas especially rural areas is improved (Warren & Ross, 2007). In addition, the board has worked to upgrade the infrastructure for essential obstetric care in hospitals, focuses on emergency obstetric care services and lastly ensures that there are effective referral and feedback systems in place to prevent delays in service delivery (Warren & Ross, 2007).

In line with the National Population Strategy in 1984, the Ministry of Health initiated the maternal and child health (MCH) services, including family planning services in both

urban and rural areas. These services are led by trained healthcare professionals, including doctors and skilled birth personnel. The services are improved from time to time in the primary healthcare setting through for example, refresher courses for traditional midwives and continuous training for healthcare personnel on family planning. A referral to tertiary centre (hospital) is also readily available for those women who needs family planning, including sterilization (Perinatal Care Manual, 2013*)*. Efforts also been made by the Malaysian government over the years to strengthen the primary healthcare system through the improvement of existing facilities and the introduction of new health services that ranges from outpatient curative care to preventive and promotive services. Primary healthcare facilities provide both preventive and promotive services, and a variety of guidelines have also been introduced especially for non-communicable diseases. Among these guidelines is the updated T2DM Clinical Practice Guidelines and Perinatal Manual Care 3rd edition (Norris et al., 2016). In Malaysia, pre-pregnancy care (PPC) exists as part of MCH services and is part of general wellness programme (Norris et al., 2016). The main aim of this health service is to provide men and women of reproductive age with a way to achieve a safe and successful pregnancy. The services include screening for risk factors and counselling for future mothers to reduce maternal and prenatal morbidity and mortality, thereby enabling prospective parents and particularly women of reproductive age to plan for a healthy pregnancy through provision of health education, family planning and emphasizing the importance of healthy living (Norris et al., 2016). Family planning services have also been expanded to other organizations and settings besides government facilities (Figure 2.4). These include the National Population and Development Board (LPPKN), Federation of Reproductive Health Associations Malaysia (FRHAM) formerly known as the Federation of Family Planning Associations (FFPAM), private clinics and hospitals as well as pharmacies (Ahmad et al., 2010).

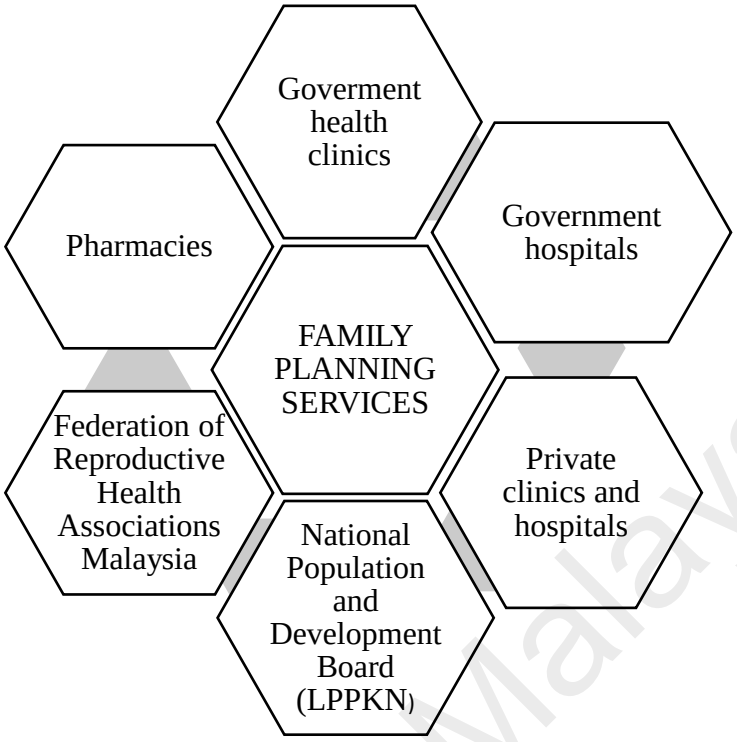


Figure 2.4: Availability of family planning services in Malaysia

The Ministry of Health Malaysia introduced guidelines on the WHO *Medical Eligibility Criteria for Contraceptive Use and Selected Practice Recommendations for Contraceptive Use (2015)*, as a means to maintain quality family planning services. Training workshops have been conducted at all levels of care to train all government healthcare providers on the use of the guidelines. Also, the guidelines were translated into the Malay language and customized for better understanding and usage by the providers (Ahmad et al., 2010).

However, despite all the initiatives to improve family planning utilization, the reasons for not utilizing family planning methods remains the same. The problems commonly encountered are fear of side effects, cultural or religious issues, lack of access, women having little role in decision-making and gender bias barriers (Najafi-Sharjabad, Yahya, Hejar Abdul Rahman, & Manaf, 2013). Although efforts have been taken to address these issues, other

socio economic reasons have resulted in the utilization of family planning methods remaining low (Manaf et al., 2012). This indicate that health services related to family planning have been not successful in influencing and, educating women and men on the utilization of family planning methods and their responsibilities for their spouse's health.

2.4.3.1 Pre pregnancy care

In 2002, Malaysia introduced Pre-pregnancy care (PPC) through *Perinatal Care Manual,* in line with its commitment to achieve UN's Millennium Development Goals 4 and 5 by 2015 (Norris et al., 2016). The manual comprised of a set of interventions that aim to identify and modify biomedical, behavioural and social risks to women's health or pregnancy outcome through prevention and management, by placing importance on factors that must be acted on before conception to have maximal impact (Posner, Johnson, Parker, Atrash, & Biermann, 2006).

In Malaysia, PPC exists as part of MCH services that comprises of a general wellness programme (Norris et al., 2016). Pre-pregnancy care aims to recognize and modify life-style, medical and behavioural risks to a woman's health and pregnancy outcome (Mazlina et al., 2014). This health service aims to provide men and women of reproductive age with a way in which to achieve a safe and successful pregnancy as there is evidence to show that appropriate PPC has improved pregnancy outcomes and should be incorporated into healthcare services (Mazlina et al., 2014).

Counselling on pregnancy includes early preparation and minimization of complications before pregnancy as well as proper spacing by using family planning post pregnancy. This early intervention and treatment can reduce the incidence of maternal and neonatal complications as well as increase the chances of having a safe pregnancy. Pre-pregnancy care is targeted at women who have pre-existing illness to ensure that the mother

and baby remain healthy through a planned parenthood. One of the target groups of PPC is women with medical illnesses, for example women with T2DM. In particular, the services include screening for risk factors and counselling future mothers such as optimization of sugar before T2DM women conceive. In addition to PPC being provided in hospitals, it is also offered at the primary care level. The updated manual in 2013, PPC is integrated into MCH and outpatient department (OPD) services (including wellness clinics, community outreach programmes, and non-communicable disease clinics), headed by the family medicine specialist or medical officer (Perinatal Care Manual, 2013). These services need the input of a multidisciplinary team that can support and care for the couple during pregnancy by ensuring that care is tailored to the individual woman's needs (Bhasin, Pant, Metha, & Kumar, 2005). A flowchart that shows how PPC practised at the primary care level (Figure 2.5).

However, there are challenges in introducing PPC programmes in the health clinic settings as these clinics provide more comprehensive diabetes services, but bear a much higher patient load. This is manifested in the level of quality of both the health services provided and the human resources available. For women, fragmentation of care interferes with continuity of care across the whole of women's life span and occurs due to the separation of reproductive and non-reproductive services (Yehuda, 2016).When healthcare delivery services are disrupted, it can adversely affect both efficiency and effectiveness. Hence, there is a need for an integrated approach to diabetes and reproductive health that includes improved communication between women with diabetes and their healthcare providers. This will enable discussion of the risks and benefits of contraceptive methods and provision of advice dedicated to improving overall health and well-being (Robinson et al., 2017).

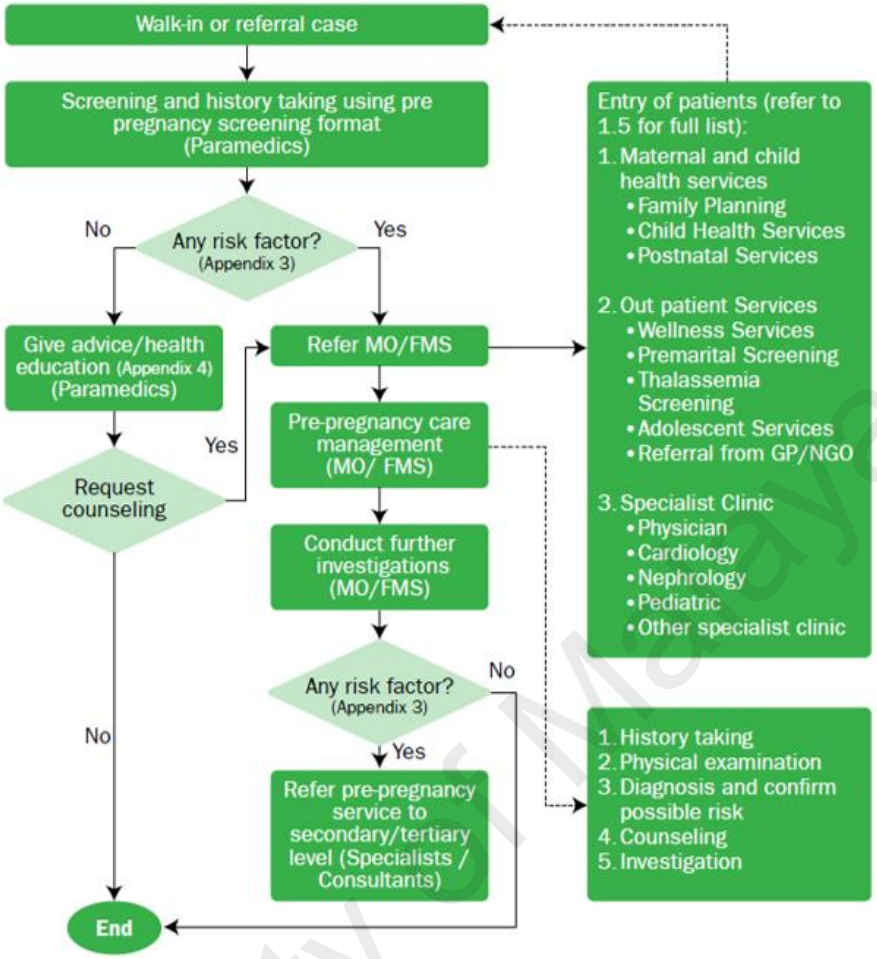


Figure 2.5: Flow chart of pre-pregnancy care at primary care level

Source: Perinatal Care Manual 3rd Edition, Ministry of Health Malaysia (2013)

2.5 Factors Influencing Family Planning Utilization

An understanding of the barriers that hinder T2DM women's utilization of family planning would provide information that could aid the relevant authorities in designing improved family planning services. A comprehensive approach is needed to explore the factors underpinning family planning utilization among T2DM women. It is essential to explore T2DM women's perspectives and the factors on family planning utilization. In this study, all the potential influencing factors were classified into one of three levels, which were adopted from the Social Ecological Model (SEM) (Bronfenbrenner, 1977). These levels are individual, interpersonal and organizational.

2.5.1 Individual-level factors

The progression of diabetes is slow because symptoms are not shown until it is at an advanced stage. Hence, many will ignore diabetes and its complications unknowingly. Such attitudes, represent obstacles and most likely delay family planning utilization. Among the studies that have focused on whether knowledge about family planning may influence its utilization among diabetes women, several have highlighted that women who do not have sufficient knowledge underutilize family planning methods (Aliasgharzadeh et al., 2008; Radulović, Šagrić, Višnjić, Tasić, & Marković, 2006). Studies have also reported, women have limited knowledge of the risks associated with diabetes and pregnancy (Nelson, Huprich, Shankar, Sohnleitner, & Paggeot, 2017). Interestingly, women who are aware of the risks posed by T2DM during pregnancy and who have the intention to reduce those risk are, however unable to identify the complications (Chuang, Velott, & Weisman, 2010; McCorry, Hughes, Spence, Holmes, & Harper, 2012; Nekui, Kazemi, & Emami, 2008). Studies have also highlighted that, most women with diabetes have difficulty in complying with family planning and thus the intention to use family planning methods decreases (Murphy et al., 2010; Nelson & Rezvan, 2012). As a result, inappropriate family planning information may generate underutilization of family planning among T2DM women and this then leads to further complications.

In contrast to the studies mentioned above, others have found that knowledge on family planning among women with co morbidities is almost universal and at a high level. For instance studies have shown that while women with co morbidities may know of at least one modern family planning method, their utilization of family planning methods remains low despite their knowledge. Hence, it is evident that, knowledge does not necessarily correlate with family planning practice (Durowade et al., 2017; Ochako et al., 2015).

Nevertheless, women with T2DM who have adequate family planning information are more empowered and have a greater understanding about why they should use family planning methods. These contradictory findings motivated this study to explore the relationship between the disease and family planning among T2DM women in a local setting. The scope of this study also includes an investigation of how T2DM women seek for information on family planning.

It has been reported that women describe side effects from family planning methods affected their marital relationship, besides cost and lack of transport (Farmer et al., 2015). Moreover, it has been found that, many women switch back from hormonal family planning to either a traditional or condom method, due to the side effects that affect their daily routines (Rossier & Hellen, 2014). Also, another previous study, mentioned that changes in the menstrual cycle as a consequence of using modern family planning is the main factor for the discontinuation of using the methods or the lack of intention to start using any other methods (Tolley, Loza, Kafafi, & Cummings, 2005).

It has been evidenced that the side effects of hormonal family planning methods, including family planning may cause cancer, delays in fertility, or result in weight gain or loss and recurrent dizziness as well as the further deterioration of women's health are among the factors for not utilizing family planning (Gueye, Speizer, Corroon, & Okigbo, 2015; Kabagenyi, Reid, Ntozi, & Atuyambe, 2016). A previous study also found that women do not fully understand that, intrauterine devices (IUDs) could not disrupt natural processes of the body (Ochako et al., 2015). Moreover, some husbands react negatively when their partner's suffers from side effects and this further discourages women from using the family planning methods (Aparna Jain, Reichenbach, Ehsan, & Rob, 2017).

One review, which focused on five developing countries (four countries in sub Saharan Africa and Vietnam), explored women's view looked into women views on family planning choices. The findings indicated that evidenced the choice of methods is influenced by a number of factors such as access to modern methods, side effects, menstrual disruption, fertility fears and lack of knowledge (Williamson, 2009). Studies have also revealed that women would prefer to use traditional methods or to even an abortion rather than use modern contraceptive methods (Mostafa & Aynul, 2010). Another study highlighted that women's concern about practical issues such as the mechanism of insertion, the cost of the methods and the effect on sexual pleasure affect their choice of family planning method (Wyatt, 2014). One study found that the barriers to using a IUD include limited knowledge, side effects, anxiety about the process of insertion, risk of infection and lack of personal control once is fitted (Asker, Stokes-Lampard, Wilson, & Beavan, 2006).

Family planning in Canada has also found to be a significant concern for Canadian women of child bearing age, their partners and their healthcare providers (Fisher & Black, 2007). The study reviewed the characteristics of family planning methods that were available in Canada, adherence to those methods and approaches to counselling to promote family planning. The study found that, the utilization of family planning depends on environmental factors (availability of contraception and medical services) and personal factors (age, sex and marital status) and that it is also influenced by the person's knowledge (Fisher & Black, 2007). Moreover, variation was found to be exist in the patient's choice of family planning method. However, the main factor that governs the choice of family planning method among T2DM women and the relative influence of other factors are still not fully understood and remained understudied. Therefore, the issues mentioned above are critical and warrants further exploration.

Variation in T2DM women's choice of healthcare services when seeking family planning services also depends on the individual's priorities. Comparing both private and public healthcare services, it was believed that public healthcare services is more capable of providing better quality care in terms of accessibility and convenience (White, 2015). This can be done through reduced waiting time and provision of better quality services. Also, women in Kenya choose private facilities due to their accessibility and convenience. Furthermore, the study highlighted that it is important for public facilities to have accreditation to improve the standard of care (Keesara, Juma, & Harper, 2015). A similar study conducted in Pakistan reported that private facilities are perceived to be better equipped and also to have staff who are more responsive staff compared to government staffs (public employees) (Azmat, 2012). In contrast, in Malaysia, women in low and middle income families prefer the government facilities due to their easy access and cost effectiveness (Kasim, 2016). In Malaysia, most women with a medical illness are aware of PPC and its services even though some of them, including those with medical problems, have never used the services (Talib, 2016). In light of the above, it seems clear that an in-depth understanding of the individual level reasons for T2DM women choices of health facilities is essential for improved uptake of services and that this issue warrants further exploration.

2.5.2 Interpersonal-level factors

The interpersonal-level factors that influence family planning utilization occur due to relationships with family members and friends. In one study it was evidenced that men or male spouses have limited knowledge about family planning. Also, family planning services do not adequately meet the needs of men and spousal communication about family planning issues is generally poor (Kaida, Kipp, Hessel, & Konde-Lule, 2005). Moreover, the changes that have taken place in the beliefs and attitudes of men towards family planning in the past

few years have generally been not recognized by managers of family planning programmes. Involving men in the counselling process leads to a positive attitude towards family planning utilization (Kaida, Kipp, Hessel, & Konde-Lule, 2005). In another study, it was revealed that, the reason for discontinuing family planning practice is mainly due to low agreement with the spouse and lack of financial support (Balogun et al., 2016). Other studies have found that men are reluctant to support family planning due to limited knowledge, fear of the side effects on their partner, and a limited choice for male family planning methods (Capurchande, Coene, Roelens, & Meulemans, 2017; Kabagenyi et al., 2014).

Some studies advocate the involvement of men in reproductive health issues such as family planning. In response to this issue, the UNPF developed a programme advisory note on partnering with men as a way of improving the outcome of reproductive health issues (Cohen & Burger, 2000). One study found that involving men in contraceptive counselling increases contraception adoption and client satisfaction, as well as effectiveness and continuation of contraceptive use (Fisher & Black, 2007). It has also been found that women who have discussed family planning with their spouses are more likely to practise modern family planning methods than women who do not (Najafi-Sharjabad, Hejar Abdul Rahman, & Yahya, 2014). In line with the above, the Ministry of Health Malaysia has initiated a number of activities in an effort to increase male participation and the sharing of responsibility for family planning (Kaida et al., 2005). Currently, the national family planning programme in Malaysia includes couple counselling as one the steps in service provision. Decision-making that involves both the husband and wife is crucial in the utilization of family planning. In Malaysia, the role of man in family planning is being addressed by implementing the range of strategies such as involving men in pre-conception care to increase their participation in contraception decision-making (Rosliza & Majdah,

2010). A pilot study which was conducted in several districts in the country, showed there is higher acceptance of family planning utilization when spouses are involved in the decision-making process (Tajuddin & Shamsuddin). It was found that husbands are the decision-maker in the family planning context as they are the main financial provider. However, when the wife has health-related conditions, the decision-making depends on the doctor's opinion (Tajuddin & Shamsuddin). Thus, understanding the spouse's opinion on family planning, can provide information which can aid the relevant authorities in designing family planning program.

One study in Nigeria investigated women's narratives about family planning, perceived barriers from male partners regarding family planning adoption and how women negotiate male partners' cooperation for family planning utilization. The study revealed that even though women are ready to use family planning methods due to health and financial constraints, however there is lack of interest and participation on the part of their partners in relation to the usage of family planning. The reason behind this result is the misconceptions held about modern methods and the preference for traditional methods (Aransiola, Akinyemi, & Fatusi, 2014). In a similar study, it has also been evidenced that spousal approval is needed for women to utilize family planning methods (Adongo et al., 2013).

A study based in Tanzania highlighted both the barriers and the facilitators for family planning decision-making through its exploration of the role of gender norms in supporting high fertility, unplanned pregnancies and unhealthy spacing of births (Schuler, Rottach, & Mukiri, 2011). The study found that the couples discuss family planning utilization, when a man is concerned about his wife's health, when a man is responsible feeding his family and when a man is dependent on his wife's income. Other studies have mentioned that spousal communication is essential for approval to increase the utilization of family planning

(Manlove et al., 2011; Mohammed, Woldeyohannes, Feleke, & Megabiaw, 2014). These studies evidenced that men should be able to participate in decision-making about family planning if they have the right information. However, another study based in Pakistan found that joint decisions on family planning method do not occur as husbands have the final say (Azmat et al., 2012). It is clear from the previous studies have highlighted that there is a need to involve spouses in family planning decision-making.

Most women with diabetes avoid having a conversation about family planning with their healthcare providers due to anxiety and focus only on tight glycaemic control (Juma, Mutombo, & Mukiira, 2015). Healthcare providers' support has also been found play a role influencing women's use of family planning (Lwin, Munsawaengsub, & Nanthamongkokchai, 2013). Several factors have been found to influence family planning utilization and avoidance of discussions on family planning with their healthcare providers including older age and higher income level, as well as poor spousal communication and relationship with healthcare providers (Kana et al., 2016; Mekonnen, Woldeyohannes, & Yigzaw, 2015; Mutombo, Bakibinga, Mukiira, & Kamande, 2014; Vahratian, Barber, Lawrence, & Kim, 2009). Thus, the views of the spouse and providers on family planning need to be further explored, in order to determine the interpersonal factors influencing family planning utilization. These factors could then be addressed in order to improve the utilization of family planning among T2DM women.

A study in rural India revealed that besides the husband, the mother-in-law also play an important role in determining family planning methods for women (Swamy, Bhanu, Kumar B. S, & Somanna, 2017). The mother-in-law's lack of knowledge and fear of side effects seems to influence their daughters' and daughter-in-law's decision not to use any family planning methods. Also due cultural differences in India, upon the birth of a son, the

likelihood of utilizing long acting contraceptives is higher. Other than the mother-in-law, other family members such as the mother and siblings as well as friends also played an important role in women's uptake of family planning practice (Hodgson, Collier, Hayes, Curry, & Fraenkel, 2013).

A previous study has also revealed that mass media including magazines is an informative source in terms of disseminating information on family planning and is seen as playing a role in positive changes in attitude towards family planning (Dhingra, Manhas, Kohli, & Mushtaq, 2010). Studies have also found that with the access to right information, mass media can be a powerful tool increasing family planning utilization, which is sometimes influenced by socio demographic characteristics of the women (Ajaero, Odimegwu, Ajaero, & Nwachukwu, 2016; Westoff & Rodriguez, 1995). However, ensuring women with diabetes seek or receive appropriate information from reliable sources, especially with the growing wealth of information available on internet and via social media, which is often unfiltered and unverified. As a result, inappropriate health information may generate misconceptions regarding family planning which then leads to higher underutilization of family planning methods among T2DM women (Steel, Lucke, & Adams, 2015). Therefore, the aforementioned issues are critical and warrant further exploration.

Studies revealed that, utilization of family planning is seen as an act that is against God will (Chuang et al., 2010; Kabagenyi et al., 2016). There are other related findings for underutilizing family planning methods such as the need to expand the family unit and the practice of polygamy that requires that women to have children socio cultural benefits (Kabagenyi et al., 2016). Community and religious leaders are also responsible for disseminating false information on family planning (Chebet et al., 2015). One study had identified that family planning utilization affects a persons' religious life, especially that of

Muslim and Hindus, and that when a womens' daily life is disrupted due to fatigue and headaches and problems with their sexual life this can lead to verbal and physical abuse (Jain, 2017).

A retrospective analysis that was conducted on reports, from the Ministry of Health Malaysia and NPFDB revealed that there is no difference in the utilization of family planning methods in different ethnic groups (Ann, Peng, & Razak, 1985). In contrast, a study compared ethnicity with family planning utilization and measured the differences in fertility according to with socioeconomic status (Becker et al., 2009). The data for the study was obtained from the *Malaysian Fertility and Family Survey*, and covered a sample size of 6090 married women aged under 50 years of age. The study found that Chinese population exhibits more modern fertility behaviour and uses modern methods more as compared to the Indian or Malay (with Indian using more compared to Malays).Overall, the Malays in the sample were less educated compared to the other two groups, lived predominantly in more rural environments that has a strong influence during their childhood years and the family breadwinners (husband) usually worked in agricultural sector (Ann et al., 1985). The study concluded that there are several issues that require attention in a multiracial country such as Malaysia in order to address the issue of family planning utilization (Ann et al., 1985). It has also been found, that the race and religion of the husband is significant with regards to the practice of family planning among women (Mansor, San San, & Abdullah, 2015). Studies in Malaysia, mentioned that Islam allowed family planning practices only if there are complications with wife and babies (Mansor, Abdullah, et al., 2015). Cultural issues was noted to be as a factor in contributing to utilization of family planning methods (Mansor, Abdullah, et al., 2015).

A previous study revealed that there is a need for a holistic approach in dealing with women with co morbidities. Study has found that repeated counselling for women with medical conditions is not continuous (Perritt et al., 2013). Moreover, most women are unable to recall that such counselling was given to them. Counselling is also an aspect that neglected by healthcare providers' in their role in delivering family planning services. Furthermore, a systematic review have highlighted that women prefer to utilize contraception counselling when they have a good relationship with their healthcare providers (Murphy, 2010, Zapata, 2015). Women with comorbidities who have good interpersonal relationship and repeated counselling from their healthcare providers can exhibit to positive behavioural change (Farmer et al., 2015). However, findings from one study indicated that healthcare providers do not focus enough attention on diabetic women especially in relation to family planning (Nekui et al., 2008). Emphasis should be placed on discussing family planning at all routine diabetic clinic visits with women of childbearing years, and stressing the importance of good PPC in order to improve pregnancy outcomes. One study evaluated the impact of diabetes mellitus on the provision of family planning counselling (Schwarz et al., 2012). The results showed that those with the disease are less likely to use contraceptive methods compared to those who do not have the disease. The study also found that physicians provide less family planning counselling to T2DM women resulting in adverse health outcomes. The result of a study showed that poor communication with healthcare providers and lack of promotion of available services are contributing factors for underutilization of counselling services (Schwarz et al., 2012).

2.5.3 Organizational-level factors

Organizational-level factors correlate with systems that have a formal multi-echelon decision-making process that operates in pursuit of specific targets and that includes formal

and informal structures (CDC, 2015). A previous study has shown that money spent on transport to seek family planning services is one of the factors for the underutilization of family planning methods (Etukudo & Ben, 2014). Moreover, the cost of transport further increases when the women have to bring their children to the facility. Thus, women tend to turn to a traditional or natural method due to lack of transport and lack of finances (Atuoye et al., 2015). In another study conducted in Pennsylvania in the United States, in which women's intention to use contraceptive methods was compared with the cost of doing so in private settings, the results revealed that women prefer to use condoms and oral contraceptive pills as their method of choice due to the cost (Weisman, Lehman, Legro, Velott, & Chuang, 2015). In other words, the choice of family planning depends on the cost of the method. Therefore, accessibility and cost challenges represent barrier to family planning utilization and can result in poor attendance at family planning services. As T2DM women need to be encouraged to seek appropriate family planning based on their health condition and to access appropriate healthcare services, this issue will be explored further in this study.

A prior study conducted in Kenya highlighted that quality of the government services is good and that there is adequate counselling provision. However, other factors such as inadequate resources of family planning methods represent as missed opportunity (Jalang'o, Thuita, Barasa, & Njoroge, 2017). Moreover, another study which was done in Africa found that having adequate number of staffs to deliver family planning services is vital to ensure proper counselling in regards to family planning utilization (Tessema, Gomersall, Mahmood, & Laurence, 2016). A study also has highlighted that women with medical conditions, as compared to those with no medical comorbidities, who attend primary health clinics have higher rates of family planning non-use (Manaf et al., 2012). Another study identified that misconceptions about family planning and the healthcare system are a barrier to family

planning utilization (Najafi, Rahman, & Juni, 2011). . Studies have also highlighted that time limitation, patient load, availability of methods and supplies as well as inadequate training in family planning are among the factors that hinder the effective delivery of family planning services (Hulme, Dunn, Guilbert, Soon, & Norman, 2015; Mortagy et al., 2010; Mugisha & Reynolds, 2008; Yarnall, Pollak, Østbye, Krause, & Michener, 2003; Zafar & Shaikh, 2014). In addition, the availability of a private room for culturally sensitive topics such as family planning play a role in the utilization of family planning services (Argago, Hajito, & Kitila, 2015). Consequently an understanding the factors affecting the family planning services in primary healthcare facilities is essential to increasing the utilization of family planning methods among T2DM women. Hence, this study will explore the factors that influence the delivery of family planning services among healthcare providers.

Also as mentioned earlier, fragmentation of care for women interferes with continuity of care across the women's lifespan and this is the result of a separation of reproductive and non-reproductive services (Yehuda, 2016). There is therefore a need for an integrated approach to diabetes and reproductive health that includes improved communication between women with diabetes and their healthcare providers. This will enable the discussion of the risks and benefits of family planning methods and the provision of advice dedicated to improving overall health and well-being (Robinson et al., 2017). Conflicts prominent when there is lack of clarity and misinterpretation of their roles of the healthcare staffs in a healthcare facility and leads to a poorly integrated approach in family planning services (Mortagy et al., 2010). Furthermore, a previous study has revealed that, training in family planning is needed, not only by those who are already delivering family planning services, but also by those who have not yet been trained (Chin-Quee et al., 2015). This approach would lead to better job satisfaction and motivation instead of staff feeling burdened with

workload due to the services. Essentially, a good healthcare system must provide better access to family planning. Furthermore, an understanding of T2DM women's family planning needs and how they interact with healthcare systems can provide information that can aid the relevant authorities in designing an improved family planning programme while developing a system of appropriate management mechanisms. Table 2.1 below summarizes the findings on the main factors that affect the utilization of family planning services.

2.6 Research Gaps

Numerous studies have explored family planning and its related factors. However, only a few studies have specifically explored the views and perspectives of T2DM women, their spouses and their health care providers' on family planning in a Malaysian setting. The discussion above have highlighted that there are several issues that are related to the utilization of family planning by T2DM women, including decision-making on family planning, choice of family planning, knowledge of family planning and communication with healthcare providers. This literature review also discovered, some gaps in existing knowledge that warrants further comprehensive research.

Table 2.1: Summaries on Literatures on Factors Influencing Family Planning Utilization

Tittle	Year	Author (s)	Study population	Design	Results/Findings
Contraceptive use among women with chronic medical conditions and factors associated with its non-use in Malaysia	2012	Rosliza Abdul Manafi	450 women	Cross sectional	Women in the older age group, women with low education and those with medical illness have low usage of contraception methods
Family planning practices among women with diabetes and overweight and obese women in the 2002 National Survey for Family Growth, US	2009	Anjel Vahratian	5955 women	Periodic survey	Older women and those who are obese and want to be pregnant, should be targeted for pre-contraception counselling
An insight into low contraceptive prevalence in Malaysia and its probable consequences	2014	Mohamed Najimudeen	Based on reports from 1974 to 2012	Retrospective analysis	Access to family planning services must be readily available both in rural and urban areas
Barriers to modern contraceptive practices among selected married women in a public university in Malaysia	2011	S.Fatemeh and A. Najafi	Six women	Qualitative	There are personal, cultural, and health system barriers to modern contraceptive use.

Education and psychological aspects and personal experiences of women with diabetes who do not attend pre-pregnancy care	2009	H. R. Murphy	29 In depth interviews	Qualitative	Knowledge concerning the risks of pregnancy and past preconception counselling does not encourage women to attend pre-pregnancy care even though almost 90% know about the benefits of pre-pregnancy care.

The complexity of a chronic disease such as diabetes cannot be overlooked as a simple occurrence, especially when complications due to the disease can be prevented. Moreover, the prevalence of diabetes at a younger age is increasing. Thus pre-conception care needs to be given importance to ensure that women have a healthy pregnancy, and this includes family planning utilization during immediate post-natal period and beyond until a woman is fit enough to conceive again. The literature review revealed that most of the previous research indicated that there is a need to address diabetic women's concerns regarding counselling, the choice of family planning method and their relationship with their healthcare provider. Also, the review of the previous studies related to barriers to family planning utilization revealed that there is a need for an in depth exploration of these issues from perspective of women with T2DM and how these issues, influencing their decisions regarding family planning utilization.

Specifically, the above literature review found clear evidence in past research that the spouse has an impact on a women's life, especially in regards to decisions on family planning issues. Family planning needs the participation of the spouse especially when the woman is suffering from a pre-existing illness. However, studies that have focused on the role and

perspective of the spouse are relatively few in Malaysia, especially those use a qualitative approach. Although studies focusing on the spouse have been conducted elsewhere, Malaysia has a number of undeniably distinct differences when compared to other nations in terms of healthcare system, culture and beliefs. Hence, the findings from studies conducted in other countries may not be applicable to Malaysia. Yet, an understanding of spouses' perspectives on family planning is important as it will assist for the relevant parties implementing better strategies to include spouses in family planning counselling.

Previous studies have also focused on several issues that are specifically related to healthcare providers and the provision of family planning services. The underutilization of family planning in primary healthcare facilities among T2DM women has puzzled many medical experts and stakeholders, and it has not yet been determined whether this is due to a failure of the healthcare system, to social issues, or whether it is related to the behaviours of T2DM women seeking family planning. The influencing factors needs to be identified because primary healthcare centres serve preventive institutions and treat a larger proportion of patients with non-communicable disease both in rural and urban areas, than private healthcare facilities. Thus, an in depth exploration of the healthcare providers views is also essential in order to identify the factors related to family planning service delivery in Malaysian's primary healthcare facilities. In the following section, a brief overview of the underpinning theory for this research is provided and the theoretical and conceptual framework is presented.

2.7 Theoretical and Conceptual Framework

2.7.1 Social ecological model (SEM)

From the literature review, the SEM was identified as the best model to guide the researcher in this research. The SEM, examines the effects of multiple levels and contexts on

an individual's behaviour (Bronfenbrenner, 1977). The SEM was developed based on the work of a number of prominent researchers such as Urie Bronfenbrenner's who proposed ecological systems theory, which focused on the relationship between the individual and the environment (Bronfenbrenner, 1979). This theory suggest that an individual's behaviour is associated with at least three spheres of influence namely individual characteristics, interpersonal features and environmental factors (Bronfenbrenner, 1979). His work has been used, modified, and extended according to the Centers of Disease Control and Prevention (CDC)'s social ecological approach, which classifies ecological systems into five levels, namely individual, interpersonal, organizational, community and policy (CDC, 2015).

The five levels in the SEM framework (Figure 2.6) have inter related influence on each other. The first level is about the individual and includes the characteristics that influence behaviour such as knowledge, attitudes, skills, and beliefs. The second level involves interpersonal processes, which provide social identity and role definition such as partner, friends, and family. The third level is organizational and includes rules, policies, and formal and informal structures and systems. The fourth level involves the community with its established norms and values, standards and social networks and the fifth level concerns policy which includes national policies on health (CDC, 2015). This model can be used to explain the influences that affect the utilization of family planning among T2DM women of reproductive age, such as their relationships with other individuals, their family and community as well as organizations. Therefore the SEM is applied in this study to explain the connections between some of the themes found in the study that may influence a T2DM woman, her spouse and her healthcare providers with regards family planning utilization and to family planning services provision in primary healthcare facilities.

Figure 2.6: The Socio Ecological Model

Source: The Social Ecological Model: A Framework for Prevention, Centers for Disease Control and Prevention (CDC). 2015.

2.7.1 Individual-level factors affecting family planning utilization among T2DM women

In SEM, the individual category includes the knowledge, beliefs, attitudes and experiences of the individual. Individuals are responsible for their health and it is necessary for them to reduce their health risks. Knowledge, belief and perceptions are also important personal factors that influence family planning utilization (Chuang et al., 2010). A study have also found that experiencing problems during first time utilization has a negative impact on continuing to use family planning methods. Biological factors play an important role as well. For instance, the side effects of a particular method, are predictors for the duration of family planning method utilization (Tolley et al., 2005).

2.7.1.2 Interpersonal-level factors affecting family planning utilization among T2DM women

The SEM identifies interpersonal factors as the individual's social networks and support systems, such as family, friends and work groups. This includes the set of individuals

that make up a women's social network such as family, friends and healthcare providers. Social networks and support systems represent potential sources of interpersonal messages and support (CDC, 2015). Furthermore, it has been shown that the support and opinions of the people around T2DM women can influence them to utilize family planning methods (Hodgson et al., 2013). In this context, this aspect of SEM focuses on what, how and when people talk to each other about family planning utilization and choices.

2.7.1.3 Organizational-level factors affecting family planning utilization among T2DM women

It is essential to create a conducive environment to promote any form of health services including family planning. Healthcare systems represent a potential source of organizational messages and support (CDC, 2015). Organizational systems and policies can influence and facilitate T2DM women's positive perceptions of family planning.

2.7.1.4 Community-level factors affecting family planning utilization among T2DM women

In the SEM, the community level factors are based on the community and the social environments in which the individual has experiences and relationships such as neighbourhoods and places the individual visits (CDC, 2015). For example, a perceived lack of community support for family planning utilization among T2DM women can send the message that family planning is inappropriate. For instance, if a social norm exists that does not support the family planning utilization, then the chances that T2DM women to use family planning methods will be low.

2.7.1.5 Policy-level factors affecting family planning utilization among T2DM women

The SEM, frames local, state and federal policies and laws that regulate or support family planning utilization and its management as policy level factors. Policies at many levels

influence family planning utilization and sustain it for better health outcomes. Furthermore, it has been shown that legislation on family planning to support during a time frame to get family planning services are essential (Manandhar et al., 2004).

Overall, the SEM describes a variety of factors influencing family planning utilization among T2DM women. However, the variables or factors influencing each level vary depending on the individual T2DM woman and the healthcare system. Each level of the SEM contains important factors that need to be explored to gain a full understanding of the factors that influence T2DM women's family planning utilization. Moreover, public health issues cannot solved by focusing on just one factor. It is important to look at factors in multiple levels and in order to determine how best to implement effective interventions. Only then can family planning utilization be adapted to an individual's true needs.

2.7.2 Conceptual framework

The conceptual framework of the factors affecting family planning utilization in primary healthcare facilities in Malaysia was constructed based on the three levels of SEM (individual, interpersonal and organizational), which guided the current study as shown in Figure 2.7. All the factors identified through the literature review were included in the conceptual framework.

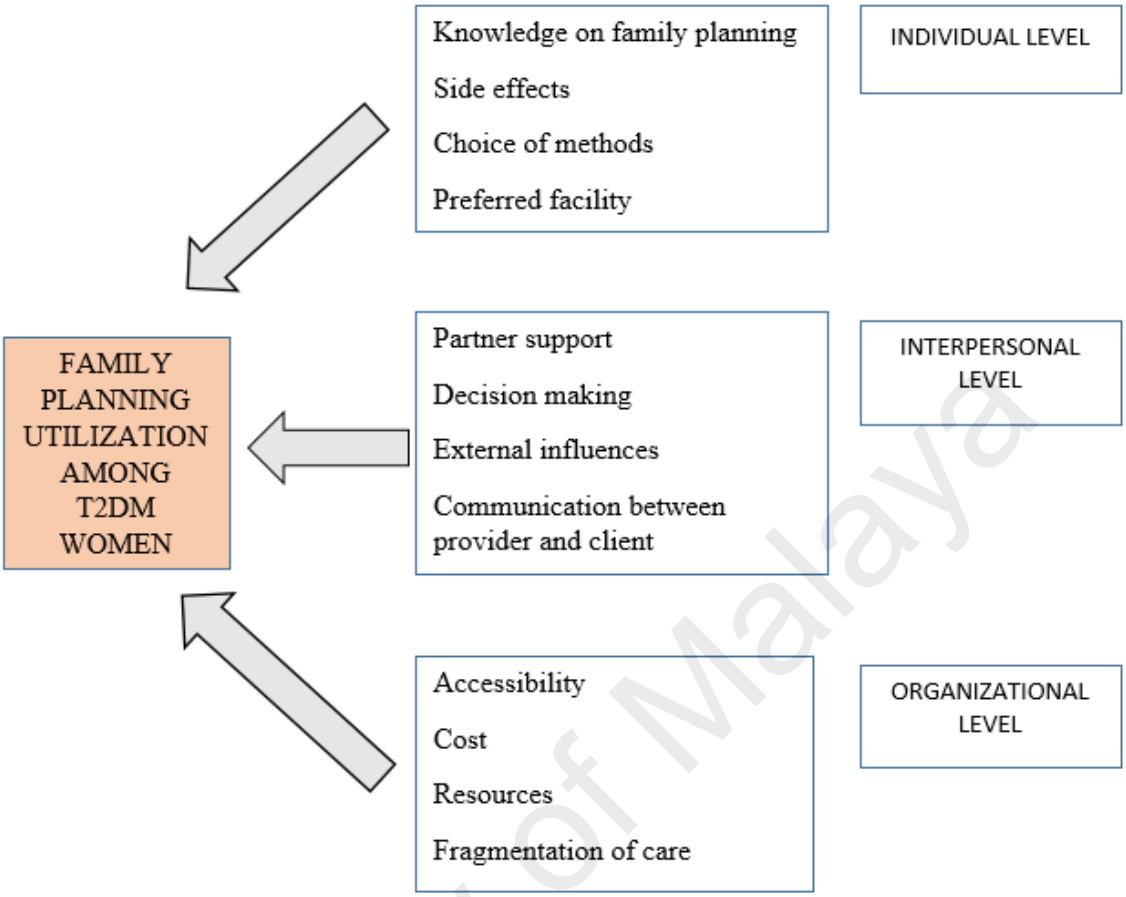


Figure 2.7: Diagrammatic illustration of conceptual framework

2.8 Summary

This chapter reviewed the relevant literature related to T2DM, in terms of its prevalence globally and in Malaysia, the transitions in the family planning programme in Malaysia and the factors influencing family planning utilization in the country. Type 2 diabetes mellitus is a major public health burden and its prevalence among women of reproductive age is increasing in many countries. Since T2DM is a chronic illness, it is important for T2DM women to play a vital role in managing their own health risks and reducing morbidity by spacing their pregnancies through utilization of family planning methods. In this chapter, research on the various perspectives and factors in family planning utilization were reviewed and categorized in accordance with the SEM. Knowledge, side

effects, choice of methods and preferred facility to obtain family planning services were identified as among the factors affecting the utilization of family planning at the individual level. At the interpersonal level, the relationship between T2DM women and their spouse, and the interpersonal communication between T2DM women and their healthcare provider were both found to play a decisive role in family planning utilization. The literature review also identified that fragmentation of care, accessibility, resources and cost are among the factors affecting family planning services at the organizational level. It was therefore concluded that there is a need to gain an in-depth understanding of the factors influencing utilization of family planning methods among women with T2DM from the perspectives of the women themselves, their spouse and their healthcare provider. This is important in order to make a suitable recommendations for the above identified issues. The following chapter provides details on the methodology used to fulfil the aims of this study.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The aim of this study is to provide a better understanding of the various factors influencing family planning utilization among T2DM women, their spouses and healthcare providers in primary healthcare facilities. Therefore, in-depth interview was conducted to gain an insight into family planning and services in primary health care facilities. This chapter discusses the research methodology applied to achieve this. The sections below provide a justification and description of the research methods applied, including the study design, the researcher's role, the study area and setting, and the participant recruitment process. The sections also describe the data collection and analysis procedures in detail. I will use the first person pronoun, to refer myself as the researcher, because I believe I am part of every stage of this study, from data collection to analysis.

3.2 Study Design

Due to the explorative nature of this research, I chose to employ a qualitative study design (Taylor, Bogdan, & DeVault, 2015). The main reason for this decision is that a qualitative study can provide a better understanding of the factors influencing family planning utilization. It also can facilitate the exploration and in-depth analysis of issues related to the delivery of family planning services by healthcare providers in primary healthcare facilities and access to those services among T2DM women and their spouses (Sandelowski, 2008). Conversely, exploring the factors affecting family planning utilization through a questionnaire survey would not cover all possible factors. The qualitative design of this research study allows an in-depth understanding of how T2DM women interact with the people around them and seek information related to family planning. Furthermore, it is the optimal approach for exploring the meaning to the actions taken by T2DM women and

their spouse in making decisions for an outcome. For example, it can shed light on how T2DM women and their spouse decide on the utilization of family planning methods that enable them to achieve a better pregnancy prognosis. Also, through the literature review, I became informed about and exposed to issues surrounding family planning service delivery in primary healthcare facilities, and consequently discovered that family planning service delivery in primary healthcare facilities is closely related to the utilization of family planning methods by T2DM women. Thus, the delivery of family planning services from the perspective of healthcare providers working in primary healthcare facilities warranted further exploration.

As mentioned above, this study utilizes a qualitative descriptive study design. This is an appropriate choice when a straight description of certain phenomena is desired, which in this case concerns the factors influencing family planning utilization by T2DM women and the meanings behind their actions (Sandelowski, 2000). The data collected for this research was extracted directly from interview transcripts and analysed by means of interpretation, which is in line with the requirements of a qualitative descriptive study. In the context of this research, qualitative description is important for obtaining straight answers to questions of special relevance to practitioners and policymakers in order to find ways to help them improve family planning utilization and the delivering of family planning services, which are key objectives of this study.

3.3 Researcher's Role

I gained the knowledge and experience from involvement in previous qualitative studies facilitated fieldwork and data collection as well as data analysis to a certain extent. My background as a medical officer, which have involved many years of communicating and consulting with patients in primary healthcare facilities, resulted in the development of

relevant skills and knowledge of various approaches that can facilitate interaction with the study participants. I was actively involved in the whole research process from preparing the interview guide to handling the observations and interviews single-handedly. Thus, there is a potential bias on my part, which would impact the outcome of the study, making this very challenging balancing act of being objective and non-judgemental in thoughts, observation and in interviews. The interview flow during data collection was kept in line with the research aim and did not divert into sensitive issues. Also, in order to minimize unjustified my influence on data collection and analysis, the participants' and my stances were constantly checked through a process of self-reflection.

Nonetheless, this could also have aided in data collection, and understanding on the topic of study, as it is something that needs to be truly experienced before having the ability to conduct the study or write about. That is why the use of field notes were vital in reporting and analysing the data. Furthermore, the using the process of peer review also helped with controlling researcher bias (Smith & Noble, 2014).

3.4 Study Area

The study area for this research was Gombak District, Selangor, Malaysia. Selangor has a total population of 6.29 million, which is the highest among the 13 states in the country (Department of Statistics, 2013). There are nine districts in Selangor, including Gombak. Gombak is the third largest district in Selangor state and is categorized as suburban (Figure 3.1).

Figure 3.1: Location of Gombak in Selangor

Source: Department of Statistics Malaysia

The district has a population of 682,996 and an area of 650.08 square kilometres, making it one of the districts in the state with a high population density (Department of Statistics, 2010). The prevalence of T2DM is high in Gombak District, accounting for about 16.8% of total number of registered T2DM patients in the state. During the period 1st January to 31st March 2017, Gombak had 31,565 T2DM patients who were registered on the National Diabetic Registry. According to the National Diabetic Registry (2016), the primary healthcare facilities in Gombak District have about 17,745 female patients (a figure that outnumbers the male patient population of 10,662) and approximately 900 of the female patient population are categorized as T2DM women within the reproductive age group (18 to 49 years old).

3.4.1 Selection of institutions

This study was conducted in public primary healthcare facilities in Gombak because these facilities offer both family planning services and T2DM treatment. Purposive sampling was used to select the primary healthcare facilities for this study.

First, the clinics with the highest number of patients with diabetes in 2016 were identified from a list all public primary care clinics in the district (Table 3.1). Then, from among these 10 clinics, seven were chosen by means of purposive sampling. The selected clinics were KK Rawang, KK Kuang, KK Sungai Buloh, KK Selayang Baru, KK Taman Ehsan, KK AU2 and KK Gombak Setia (marked by the red dots in Figure 3.2). All of these clinics have a well-established diabetic clinic with a trained postgraduate diabetic staff nurse. These healthcare centres also have a family medicine specialist and a pre-pregnancy care (PPC) clinic where the medical personnel counsel their high-risk clients. The referral centres for these seven clinics are Hospital Sungai Buloh and Hospital Selayang as the tertiary centre for further management.

Table 3.1: Total Diabetic Patients Attendance at Primary Healthcare Clinics in Gombak District, 2016

Health centre	Number of diabetic patients
Sungai Buloh	20,485
Selayang Baru	12,763
Taman Ehsan	15,653
Rawang	11,380
Gombak Setia	7253
AU2	15,479
Kuang	5162
Batu Arang	4267
Batu 8	1207
Hulu Kelang	2197

Source: Diabetic registry Gombak district health office

Figure 3.2: Location of primary healthcare facilities in Gombak District

Source: Department of Statistics Malaysia https://www.dosm.gov.my

3.5 Setting

Primary healthcare clinics are the first choice for most patients as treatment is provided at minimal cost. These facilities provide consultation for mild to moderate diseases ranging from simple upper respiratory tract infections to accident and emergency cases. Some basic radiology and laboratory investigations are also available at these establishments. However, if further screening is required, samples are sent to hospitals. Besides curative services, these healthcare facilities also provide preventive care services, such as screening the community for non-communicable diseases and medical camps, as well as vaccinations and care for pregnant women and children. In Gombak, 10 klinik kesihatan (KK; health clinic) and four klinik desa (KD; community clinic) are distributed across the district according to the density of the local population (Figure 3.2).

Most of these healthcare facilities are situated in old buildings, but some are in newer ones. However, within all these buildings, the setup is almost the same. Generally, primary healthcare provision is divided into two main sections, namely an outpatient department (OPD) and a maternal child health (MCH) unit. The OPD caters for general illnesses, non-communicable diseases, asthma and tuberculosis among others. The MCH unit usually focuses on women's and children's health. Most nurses working in MCH have post basic training in midwifery, unlike the nurses stationed in the OPD. Referrals are made within the facility, instead of treating the patient holistically.

Providers share their consultation rooms (minimum of two), which have only one examination bed for one room. Next of kin are not allowed into the consultation for two reasons: space issues and privacy for the other patient. Some consultation rooms with bigger space can accommodate up to three nurses, especially in the antenatal section, with one examination bed. Patients have to go to other sections within the facility for blood taking, radiography and basic anthropometric measurement. In primary healthcare facilities the usual practice is for T2DM women to go back to the OPD for a routine follow-up 6 weeks postpartum.

3.5.1 Family planning services in Gombak District

Family planning services are available in all the primary healthcare facilities including community clinics (klinik desa) throughout Gombak. All these facilities offers a wide range of family planning methods, for example, condoms, oral contraceptive pills, injectable contraceptives and intrauterine devices at no cost to the patient (Ahmad et al., 2010). However, long-term methods such as Implanon are not available in primary healthcare facilities. Clients who needs longer term methods are referred to tertiary centres (hospitals) or the Lembaga Penduduk dan Pembangunan Keluarga Negara (LPPKN). Family planning

services are also extended via medical camps and health campaigns from time to time to promote the importance of family planning. Pre-pregnancy care is also available in all primary healthcare centres in Gombak District. This service is led by family medicine specialist and operated by medical officers (Perinatal Care Manual, 2013).

3.6 Selection of Participants

The focus of this research is the perceptions of family planning in primary healthcare facilities among T2DM women, spouses and healthcare providers. Spouses' and healthcare providers' perceptions on family planning are important as an understanding of their perspectives may help to increase utilization and improve services. All the participants in this research were selected using purposeful sampling. Due to the nature and objectives of this research, this sampling was the most appropriate option as there was a limited number of people who could provide rich information and who could serve as a source of primary data (Patton, 1990). Purposeful sampling was used to identify a variety of relevant persons; T2DM women, spouses and healthcare providers, who were knowledgeable and could provide information about the research topic from their different perspectives.

3.6.1 Recruitment of participants

After obtaining ethical approval (see section 3.16), a letter was sent to the state health office to seek permission to conduct research in Gombak District. Upon approval, I approached the Gombak District Health Officer and briefed him about the research. Prior to data collection, the participants were selected purposively to ensure that only reproductive T2DM women undertaking T2DM treatment at primary healthcare facilities were recruited. The healthcare providers from each of the selected healthcare facilities were also purposefully selected as I recognized that their perspectives on family planning might differ

from one setting to another. Based on the objectives presented in chapter one, the participants were selected based on the following inclusion and exclusion criteria (Figure 3.3):

Inclusion criteria:

Type 2 diabetes mellitus women

- Women of reproductive age (18 to 45 years old)
- Diagnosed with diabetes mellitus and on oral hyperglycaemic agents and insulin
- Have visited the respective clinic at least twice

The rationale for selecting patients who had visited the healthcare facility at least twice was to ensure that they had engaged with that facility. Thus, they would be able to provide details of their experiences seeking treatment and counselling in that particular health facility.

Spouse

- Has wife with T2DM

Healthcare providers

- Medical officers who have worked in a primary healthcare centre for more than two years
- Staff nurses who have had post basic training in midwifery and diabetes care

For the purpose of this study, the selected medical officers needed to have been stationed in primary healthcare facilities for at least two years so that they would be familiar with the different departments such as the MCH unit and OPD. The diabetes clinic in primary healthcare facilities is usually staffed by nurses who have post basic training due to the need to be involved with high-risk patients such as T2DM women. In order to be able to provide an account of their experiences and how T2DM women decide on family planning utilization,

the nurses participating in this study had to qualified in post basic training in midwifery and responsible for taking care of high-risk antenatal and post-natal women in primary care settings.

Exclusion criteria:

T2DM women

- Non-Malaysian
- Diagnosed with T2DM for less than six months
- Have had a sterilization procedure (e.g., Bilateral tubal ligation)

Spouse

- Have had a sterilization procedure (e.g., a vasectomy)

Healthcare providers

- Have had less than two years of working experience in a primary healthcare clinic

The recruitment process was smooth due to support from the nurses who were in charge of the non-communicable diseases and MCH units at the respective clinics identifying the potential T2DM female participants for this study. First, the identified T2DM women were approached while waiting to see their doctors at the primary healthcare clinics when seeking routine T2DM treatment. Then the potential participants were told about the objectives of the study and briefed with relevant information regarding the data collection process. The participant information sheet was then provided to those who agreed to take part. Those patients who had the time and agreed to participate were interviewed on the day of recruitment. Otherwise, appointments were made and venues were chosen based on the

participants' convenience. The spouses of the potential participants were also approached and interviewed following the same procedure.

As for the participating healthcare providers, following a briefing session with the family medicine specialist (doctor in charge) of each primary healthcare centre, the potential healthcare providers were selected and approached. The healthcare providers were selected based on their experience of treating T2DM women because decisions on family planning utilization and methods are significantly influenced by the input from the healthcare provider. The date, time, and venue for each interview was decided based on convenience and preference of each provider. This was to ensure that there were no disruptions to the clinic's patient flow and routine.

All participants voluntarily agreed to be interviewed and gave their written consent. The interview was conducted in a room that was available on the day. The settings for the interviews differed depending on the physical structure of the healthcare clinic and the availability of rooms, which were, for example, meeting rooms or funduscopic rooms. The venue for the interview was selected based on environment (less noise) and availability of appropriate furniture (tables and chairs facing each other), as well as privacy (no other personnel present at the time of the interview) to ensure confidentiality. Some T2DM women and spouse reluctant to participate or interviewed after explaining the objective of the research. Two main reasons for the hesitancy is time constraint and talking on family planning with an opposite gender (spouse to the researcher).

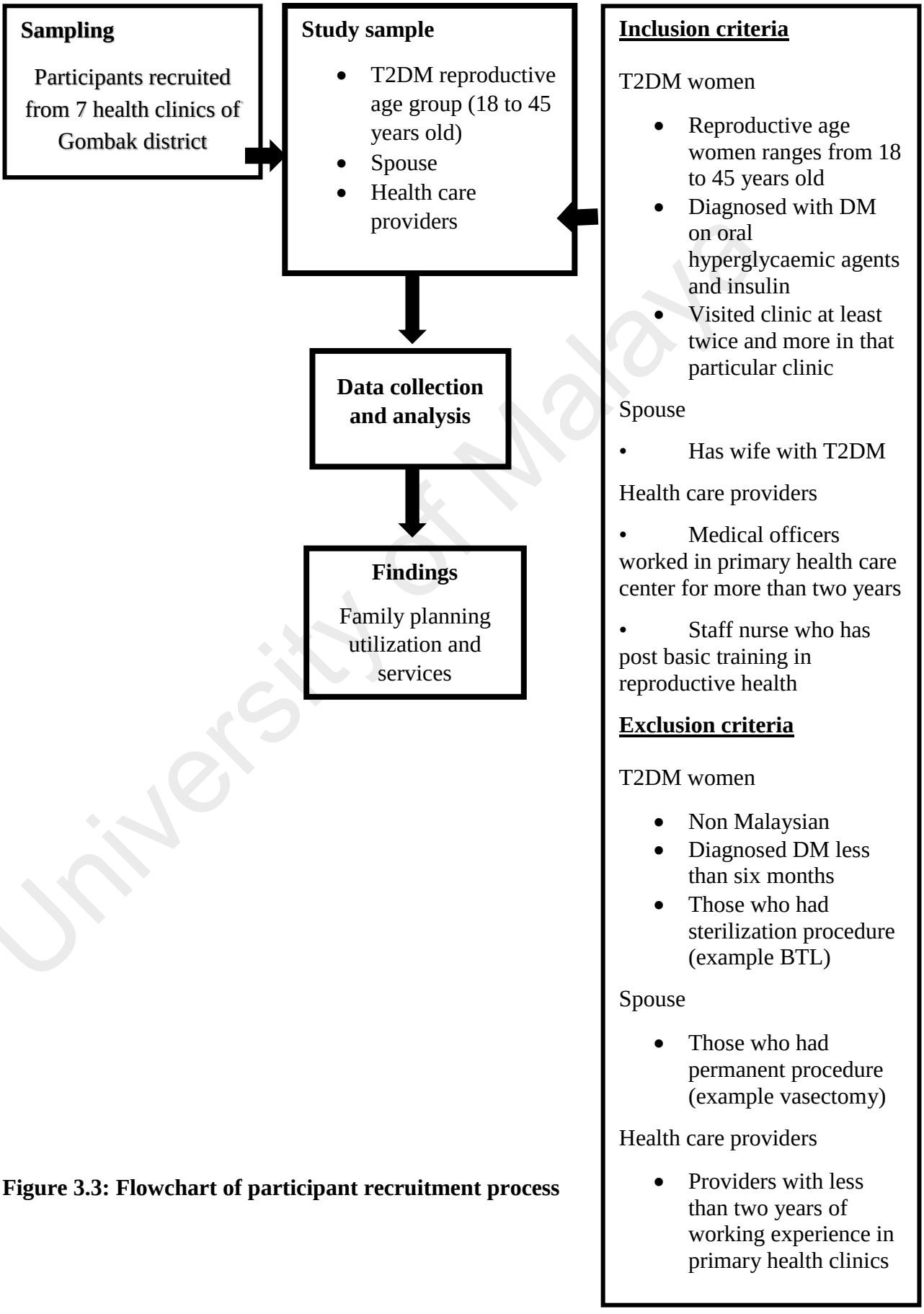


Figure 3.3: Flowchart of participant recruitment process

3.7 Sample Size and Saturation

The precise number of participants was not decided beforehand, but in the later stage of the research process, at the point when it was believed that saturation had been reached (Guest, Bunce, & Johnson, 2006). Sampling ceased at saturation, i.e., when all categories (themes) were well developed in terms of variation and when the core category was well defined. It was important for the saturation process to proceed gradually as the validity, meaningfulness and insights generated in this research had more to do with the information richness of the cases than the size of the sample (Sandelowski, 1995). Saturation was observed after 38 interview transcripts had been coded. The transcripts were of interviews with 11 T2DM women, seven spouses and 20 healthcare providers (11 medical officers and nine nurses). After this point, no new categories were added to further the understanding of perceptions on family planning utilization.

3.8 Data Collection Methods

The methods chosen for this study were based on the nature of the research questions and objectives. The methods were needed to be able to facilitate an in-depth understanding or interaction between the researcher and the participants. To achieve this, I used non-participant observation, in-depth interviews among T2DM women, spouse and healthcare providers, field notes and a review of documents.

3.8.1 Non participant observation

Non-participant observation was used in this study for two reasons. First, I wanted to gain a better understanding of the environment at the study site, for example, the current structure of each of the public primary healthcare facilities (Kawulich, 2005). This involved a simple mapping out of the setting and the developing of social networks to help the researcher to understand the environment. These activities were useful in enabling me to

know what to observe and from whom to gather information. Second, I used non-participant observation to develop insights on the provision of care activities and the interactions during the counselling session between the provider and client and vice versa. This was done to frame issues before exploring them via the in-depth interview, which is especially useful when the subject matter covers sensitive issues such as family planning (Kawulich, 2005) .

3.8.2 In-depth interview

The in-depth interview was chosen as a data collection method because it can provide good amount of data as compared to focus group discussions that can deter participants from expressing their thoughts freely and equally. Moreover, the in-depth interview seemed to be the most appropriate method because family planning is a sensitive topic that people might be reluctant to discuss in a group setting (Jordan et al., 2007). Thus, the use of the in-depth interview enabled myself to explore the views and perceptions of T2DM women, their spouses and their healthcare providers and to gain a greater understanding of family planning utilization from their respective viewpoints in a confidential setting (Taylor et al., 2015). The use of a one-to-one in-depth interview approach removed constraints and enabled the participants to talk in a comfortable way about their personal views as well as criticize the current system if they so wished, which they may not have been able or willing to do in a focus group setting.

Another advantage of conducting one-to-one in-depth interviews was, I was able to pay close attention to each individual participant. If a participant did not understand the meaning of a question or the researcher felt that the participant did not answer a question fully, I asked the question in a different way or probed further. I was also able observe the participants' body language and to look for signs that indicated whether or not the participant felt comfortable with the situation and the questions being posed. The in-depth interviews

also allowed me to obtain spontaneous answers from the participant. An interviewer needs to listen carefully to what is being said by the interviewee and at the same time think about what questions to ask next so that the flow of the interview remains smooth. At the same time, the interviewer needs to make sure that all questions have been asked regardless of the sequence of the questions and that no questions are asked repeatedly. Hence for this exploratory study, the semi-structured interview approach was deemed more appropriate than the structured interview.

3.8.3 Field notes

Field notes are important for the interviewer throughout the process independently. I jotted down field notes during each observation and during each interview. The aim of writing notes was to keep a record of the important points noticed during the observation and to help develop further probing questions for better clarity and understanding. The participants' responses, body language and expressions during the interviews were also noted. These notes helped me to recall the scenario of each interview and improve interviewing skills and techniques as the study progressed. These notes became part of the data and were included in the data analysis.

3.8.4 Review of documents

In a qualitative study, documents can provide other specific details to corroborate information from other sources (Bowen, 2009). I used the document review method for two reasons. First, it was used to gain insights into the current operation of family planning programme and statistics on family planning utilization in the primary healthcare facilities in Gombak District. Second, it was used to gain an understanding of the existing documents and to formulate suitable questions for the interviews. Among the documents reviewed in this study were the MCH indicator records of Gombak, diabetes follow-up documents, PPC

cards, statistical reports and the PPC manual produced by the Ministry of Health Malaysia. Due to confidentiality and trust issues, these documents are not attached to this thesis. However, the data gathered from these documents was included and considered in the data analysis.

3.9 Study Instruments

3.9.1 Checklist for observation

An observation checklist (Kim & Lettenmaier, 1995) was adopted and modified according to the study's aim and objectives (Appendix 13). This checklist covered the details of the client–provider consultation and the study site environment that needed to be obtained. The content of the checklist covered whether the provider greeted the patient, whether they asked about her illness and family planning utilization, whether they explained family planning, the level of interpersonal communication skills and the use of materials during the consultation. Either at the end or beginning of the session, I got a glimpse of the facility and wrote down some details about it. This checklist was useful during the development of the interview guide for the in-depth interviews and for formulating questions for those participants who could help to answer specific research questions.

3.9.2 Interview guide

In-depth interviews were conducted by referring to a specially developed interview guide. In this study, the semi-structured interview was chosen for two reasons. First, the semi-structured interview gave me the opportunity to study the topic of family planning from the participants' perspectives. Second, the semi-structured interview was thought to be the best instrument for this research as it allowed the participants to have some freedom in expressing their opinion on their experience of family planning utilization (Kvale & Brinkmann, 2009). I developed the interview guide based on the results of a review of the literature on the factors

associated with family planning utilization and services. The purpose of this guide was to assist me while in dialogue with the participant, and especially when probing questions were needed.

The interview guide was developed in the English language and then later translated into Bahasa Melayu (the national language of Malaysia). My peers who were qualified doctors, holders of Master's in Public Health, and who could speak and write both English and Bahasa Melayu well, reviewed the interview guide questions in English and Bahasa Melayu to ensure that the meaning was similar in both languages. The interview guide was also discussed with supervisors to ensure that the content was in line with the research aim and objectives. The interview guide for T2DM women and spouses contained questions that asked them to describe their perceptions on the importance of family planning, the factors influencing their utilization of family planning methods and services, their decision-making processes/criteria, and their preferred place for seeking family planning services. As for the interview guide for healthcare providers, it included questions that asked them to describe their perspective on family planning, the factors influencing family planning utilization and their suggestions for improving family planning utilization and services for high-risk groups such as diabetic women (Appendix 7, 8 and 9).

3.10 Pilot Study

The aim of conducting pilot study was to assess and prepare the in-depth interview guide and questions as well as observation techniques. Through piloting, I was able to expand on or narrow down the research topic as necessary and gain a clear conceptualization of the focus of the topic (Kim, 2011). I also modified the interview guide questions based on the responses obtained in the pilot study.

I conducted two pilot interviews each with T2DM women, their spouses, and medical officers and nurses before the real data collection process started as this was my first time conducting interviews single-handedly for a qualitative study. I used the same criteria for the selection of the pilot study participants as for the main study. An interview location was selected that did not have too much background noise, so that distractions were removed and the recording of data was made easier.

Before beginning the interview, a good rapport was established with each participant to foster better communication. The aim and purpose of the research and interview was explained to the participants. Written consent was obtained from them and they were assured that their identity would remain confidential and that any information obtained would be used only for research purposes. During the interview, the questions in the protocol were followed sequentially. However, certain questions that were considered irrelevant due to the response from the participant were skipped.

The interview guide was amended after the pilot study so that it was appropriate for each group of participants. Some of the amendments were related to the structure of the sentences and the choice of terms used. Probing questions were also added based on the pilot interviews. For example, at the beginning of an interview with one T2DM woman, the participant was reluctant to elaborate on the advice she received from the healthcare provider on family planning. Therefore I had to rephrase the question "Currently in this clinic (DM clinic), what do the healthcare providers say about family planning?" to "Can you tell me the advice you received from the doctor or nurses in regards to family planning?" Similarly, some of the questions designed for the healthcare providers, which were based on the literature and research objectives, were also amended as appropriate. For instance, the terms "family planning practice by T2DM women" and "family planning services" were used

interchangeably to achieve the research aim, and some of the question sentences were modified into a simpler version for the nurses to clarify issues and provide flexibility.

This pilot study resulted in four interview guides, one for T2DM women, one for spouses, one for medical officers and one for nurses. The amended interview guides were discussed with supervisors to ensure their clarity. The pilot interview sessions gave me the opportunity to gain an overview of the topic, refine the interview technique and rephrase difficult or ambiguous interview questions to each specific group of participants. The pilot interview participants' transcripts were not included in data analysis. Some of the factors in the conceptual framework also emerged from the findings in the pilot study.

3.11 Data Collection

As mentioned above, the data for this study was collected using four methods: non-participant observation, in-depth interviews, field notes and document review. The application of these methods is elaborated below.

3.11.1 Non Participant observation

I took the time to visit the study area in order to acquaint myself with the locations and settings of the three clinics, the healthcare providers, the types of clients attending the clinics and the physical structures available for family planning services. For this purpose, I, who was also the observer, visited three healthcare facilities (two facilities that had been in operation more than 15 years; KK Selayang Baru and KK Gombak Setia and one that had been in operation for eight years; KK Rawang). These facilities were chosen in order to identify any differences between the new and old clinic structures. The main aim of the observation was to become familiarized with the system in place at healthcare clinics. The observation started with observing the structure of the facility and clinic flow, including the procedures followed at the registration counter, the waiting time to see a provider, and the

duration of the consultation between T2DM women and their providers. It also involved observing interactions between the healthcare providers and T2DM women.

It was important for me to choose a suitable time to observe the consultation between the healthcare providers and T2DM women so as to avoid disrupting the clinic flow and the duties of the healthcare providers. At each of the three visits, I approached and asked permission from the healthcare provider who was on duty to perform an observation. If the healthcare provider agreed to being observed, they then introduced me to the T2DM women attending their clinic. The observation took place only after both the healthcare provider and the T2DM women had agreed to be observed. To observe the consultation, I sat in a suitable position to keep disruption at a minimum but allowed the observation to be undertaken smoothly. A checklist was used to guide me in noting down the areas that the study needed to address (Kim & Lettenmaier, 1995). The observation checklist was used for two purposes: to describe the setting of the facility and to provide an accurate description of what had been observed. The healthcare providers were not shown the observation sheet used to record these notes in order to reduce any bias in their behaviour.

I observed the setting of the consultation rooms as well as the conversations between the T2DM women and their healthcare providers. Notes were taken during the consultation, in particular regarding body language and the context of the interaction. These observations took between 10 and 15 minutes each depending on the individual consultation time. After each consultation between the healthcare provider and the T2DM woman had ended, I updated the notes with any information that had been missed earlier.

3.11.2 Review of documents

Some important and relevant documents, for example diabetic follow-up records and PPC cards, were reviewed after the observations and the in-depth interviews had taken place.

Relevant information in regards to the study was noted and clarified with the healthcare providers. For instance, I reviewed the PPC cards to look for details such as counselling, the last consultation on family planning and subsequent follow-up. I also examined the relevant documents and sources, such as the Ministry of Health's PPC manual and the Gombak District reports on family planning, to develop a deeper understanding of the study context and to discover insights relevant to the study.

3.11.3 In-depth Interviews

The in-depth interviews were conducted from March to October 2017. All the interviews were conducted solely me (interviewer). There was a small ice-breaking session before the interview to put the participants at ease and help them to feel more comfortable. During the ice-breaking session, the aim and objectives of the study were explained and they were assured all the information including their name would remain confidential throughout the interview process as well as during the data analysis.

All the participants agreed voluntarily to take part in the interview and signed a consent form before the interview took place in order to confirm their eligibility to participate in this research. Then in a one-to-one interview, each participant was asked to share their perceptions on their family planning utilization and the family planning services provided at the primary healthcare clinic. I used the interview guide during the interview and subsequent probing questions were directed at the participant at appropriate times within the flow of the conversation as identified. I refrained from cutting off the conversation in midflow in order to ensure that the participant had fully expressed their opinion on each question. Each interview took place in a designated room within the respective healthcare clinic and lasted from about 20 minutes to 1 hour.

The participants were given the option of responding in English or Bahasa Melayu, and their choice was based on the language in which they were most comfortable expressing their thoughts freely during the interview process. In some interviews a mixture of both English and Bahasa Melayu was used, depending on the participants' comfortability as assessed during the course of the interview. Thus the interviews were conducted according to the participants' choice of language. A portable voice recorder (Sony, Japan) was used to audiotape the interview sessions. This device was chosen because it had features such as a direct connection digital recorder with 2 GB built-in memory that were appropriate for use in this part of the study. The tapes were tested immediately prior to the interviews or earlier to avoid any disruption during the interview session. Extra batteries were also prepared for emergency purposes. Each interview was audiotaped with the consent of the participant and notes were also taken of the responses as a backup and also as a guide for further probing questions. After the interview session, the audiotaped conversation was transferred to my laptop for transcription purposes. The details of the interviews were not stored in any other devices in order to protect the data and to maintain confidentiality.

Due to the ice-breaking session, a good rapport was developed with all the participants and they felt comfortable sharing their experiences and were able to relate to the questions asked. A significant level of trustworthiness in the data was achieved because of this rapport and the information provided by the participants.

3.11.3.1 Interview with T2DM women

The in-depth interview provides a greater amount of good-quality information than, for example the focus group, especially when investigating sensitive issues such as family planning as it allows the women to talk freely without constraints. Hence, the in-depth interview was considered to be the most appropriate method for the study participants, who

were T2DM women of reproductive age. The participants were asked to describe their perspective on family planning, the importance of family planning, the factors influencing their utilization of family planning methods and services, their decision-making process, and their preferred place for seeking family planning services.

For the purpose of this research, T2DM women who were visiting one of the selected clinics for a routine appointment were approached to take part in an interview. To those who fulfilled the suitability criteria, I gave a brief introduction which included the aim of the study and subsequently asked them if they would consent to join the study. The participants who agreed to join were brought to the site of the interview. The interview site was determined based on a few conditions. Among them were that the interview room must be enclosed, quiet and conducive to avoid disruption during the interview audio-recording process. This also ensured that there was confidentiality, privacy and trust between the interviewer and participant. The interview site was also equipped with tables and chairs. This furniture was important for two reasons. First, it was more appropriate to sit facing each other so the interviewer could understand the participants' body language and have good eye contact. Second, it was easier for me to set up the equipment for the interview process and to take notes.

3.11.3.2 Interview with spouses

This research focuses on family planning utilization and it is believed that family planning is based on a shared decision by both husband and wife. Thus, it was appropriate to interview the spouses for this research. It was envisaged that this would lead to a greater understanding of family planning utilization from the counterpart's side by gaining information about their medical conditions and desire for children.

Spouses who attended the clinic were recruited during their T2DM wife's follow-up sessions. Eligibility for participation was based on the inclusion criteria mentioned above. Those participants who agreed to take part in an interview were interviewed using the same process and setting as the T2DM women and written consent was obtained before the commencement of the interview. In the situation where T2DM women attended a follow-up session alone, they were asked to provide their husband's contact number so that he could be approached to gain his agreement to participate in the research. During the call, an appointment was arranged for the interview. The in-depth interview procedure explained above was repeated for the spouses. Written consent was taken for each interview and all the conversations were audiotaped.

3.11.3.3 Interview with healthcare providers

Healthcare providers were interviewed to elicit the factors influencing family planning utilization including their perspectives on family planning services and suggestions for improving the current system. They were included in this research because they act as the bridge between vulnerable populations and primary care centre services. Hence their opinions are needed to improve family planning services for high-risk populations, including T2DM women, who were the targeted population in this research.

The in-depth interview gave me the opportunity to gain information including criticisms about the current healthcare system which may have involved sensitive issues. Since confidentiality was assured throughout the research period, healthcare personnel were able to express their views on and dissatisfaction with family planning service delivery. I also had the chance to study the workplace of the participants as the interviews were conducted in the participants' workplace. Appointments were fixed in advance with the participants to ensure that they were completely available and the clinic schedule was not disturbed.

Interviews were conducted using the same process and setting as that for the T2DM women and spouses and written consent was obtained before the commencement of the interview.

3.12 Data Analysis

In this study, thematic analysis was used to describe the essence of the factors influencing T2DM women's utilization of family planning methods and services in primary healthcare facilities (Braun & Clarke, 2006). I identified the themes that were important for the different types of participants, i.e., T2DM women, spouses and healthcare providers. Thematic analysis was the most appropriate approach due to its flexibility (Vaismoradi, Turunen, & Bondas, 2013). Data analysis began soon after the first interview. I did the main analysis, examined the transcripts of the interviews and interview notes for emerging themes for each group of participants. Several steps were followed during analysis process, which are explained below.

a) Data familiarization

All the audiotaped interviews were transcribed verbatim with all personal identities removed. The transcription was done solely by me. The interviews that were conducted in Bahasa Melayu were transcribed without translation for analysis. Some of the meaning of the original words in Bahasa Melayu was maintained to ensure originality. To ensure the accuracy of the transcription, the transcripts were read through and the recordings were listened to a few times prior to analysis. The transcripts were read at least two to three times, and at the same time initial ideas about the content were written down in order to improve understanding. Some expressions were transcribed to better capture and reflect the informants' views and insights. If a meaning or expression in the transcript was not clear, the recording was listened to again to confirm it. Field notes were also read through to get an overall impression of the context of each interview. This data familiarization process helped

me to develop a better sense of the data before starting to code it or search for meanings and patterns.

b) Generation of initial codes

Initially, analysis by means of manual coding was completed in hardcopy format as it enabled myself to become immersed in the data. The first three interview transcripts were coded based on the coding frame deduced from the literature review. The use of deductive codes in the coding process allowed me to compare the findings with the literature (Soiferman, 2010). Coding was focused on the identification of the factors influencing family planning utilization. Preliminary codes were identified, some of which were developed inductively based on what appeared interesting and meaningful based on the objectives of the study after repeated reading of the transcripts (Soiferman, 2010). The coding process was repeated several times for each participant until the last interview. The field notes that were compiled during the interview also facilitated the coding process especially with respect to nonverbal contextual issues. As more interviews were conducted, more interesting codes emerged from the transcribed interviews. Only new codes were added to the coding frame to avoid duplication in the list of codes. The other transcripts were saved in Microsoft Word format and subsequently transferred to NVIVO version 11 for practical reasons. The same process was repeated for each group of participants. After coding, the codes were layered in order to aggregate similar codes and reduce redundancy. Figures 3.4 and 3.5 show the subcategories of codes in a hierarchical arrangement. I referred to the coding frame repeatedly to remain consistent throughout the coding process.

c) Search for themes

By this step in the analysis, all the transcripts had been coded and a long list of codes was available. I analysed these codes and looked for any themes that emerged from the coding. To ensure that the emerging themes were credible, I mapped the themes and the codes that supported each theme. There were some codes which fitted directly into the theme but some were spliced into new themes or formed sub-themes. The codes were analysed repeatedly to look for themes that emerged across participants. At the end of this step, there were several significant themes for each group of participants. Some of the themes that emerged were decision-making, side effects and influence from external sources.

d) Review of themes

The themes were reviewed from time to time, either to confirm, merge or separate them accordingly. This process was done repeatedly to ensure that the codes and themes that were developed and refined would answer the research questions at the end of the study. If they did not appear to be well patterned, the themes were either renamed or the extracts were moved to a better fitted theme. In addition, a team approach, my supervisors (one who is an expert in family health and qualitative study, and the other in epidemiology) and myself, was used to discuss the results and the members of the team came to an agreement on the themes throughout the analysis. This ensured the validity of individual themes in relation to the data.

e) Definition and naming of themes

Finally, each theme was analysed one more time to look into the precision of the themes. Once satisfied with the flow of the themes, each theme was named officially to make

sense of what the theme was about. This work was conducted both my supervisors and myself, and was based on an understanding of the topic backed up by the literature review.

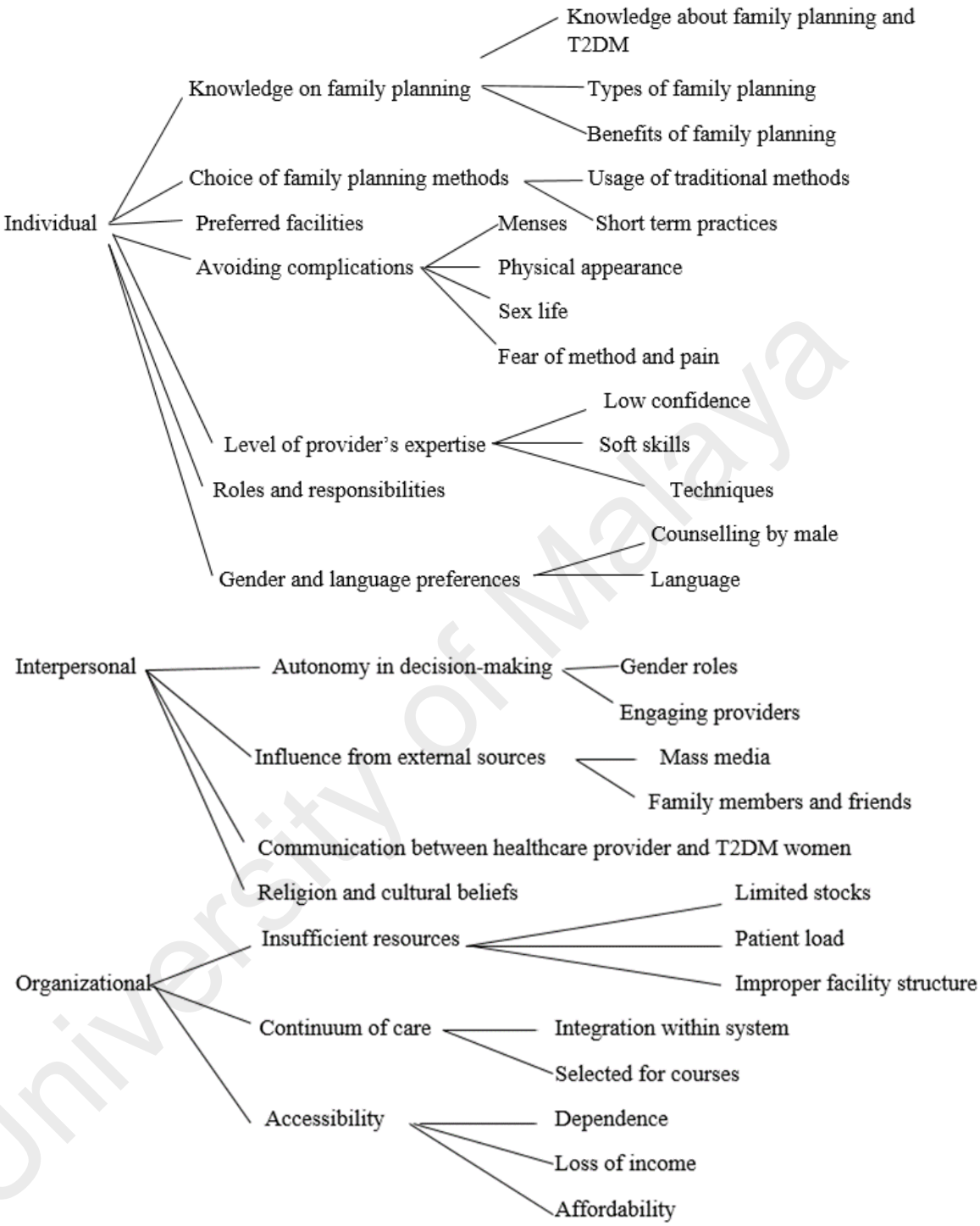


Figure 3.4: Coding tree diagram A

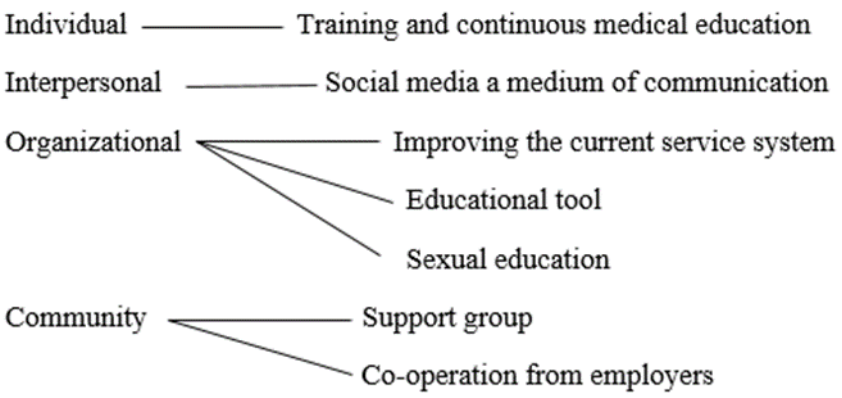


Figure 3.5: Coding tree diagram B

3.13 Data Verification and Trustworthiness

In qualitative research, it is critical to assess the quality of the data in order to ensure that the data is both reliable and trustworthy. The correct use of research methods is an important aspect of high-quality research processes and outcomes and is referred to as rigour (Fossey, Harvey, McDermott, & Davidson, 2002). The credibility of a qualitative analysis depends on the rigour of the methods used for gathering quality data and the credibility of the researcher (Shenton, 2004). The methods used in this study were the in-depth interview, review of documents and non-participant observation, which are both suitable methods for understanding the actions or activities related to certain behaviours and for exploring people's perceptions. Hence, I ensured that all of the aforementioned steps for these methods were adhered to as closely as possible. Furthermore, I was considered an instrument of data collection, which means that the data was mediated through a human instrument (Denzin, 2011). Thus, being a medical officer and working in primary healthcare centres proved to be beneficial to me in terms of being a reliable instrument. Moreover, the vast experience of my two supervisors further added to the researcher's credibility.

In addition, the preliminary findings were presented to the participants in order to get their feedback and improve the validity of the data analysis (Harper & Cole, 2012). A debriefing was completed where the preliminary results and model were presented to the study participants in order to gain feedback and check the validity of data analysis. Only four healthcare providers were able to attend the feedback session due to their tight clinic schedules. However, their valuable feedback and comments helped to refine the explanations. Only one T2DM woman and her spouse were able to attend the feedback session. They both agreed with the identified categories on the utilization of family planning. Feedback from the other participants could not be collected due to their availability and time factors.

In this study, triangulation strategies involving data sources and methods led to the inclusion of different groups of study participants based on findings or earlier analysis, which added to the variety of information sources (Hales, 2010). In terms of analysis, the experience and expertise of other researchers provided a broader view and deeper understanding of the issue under study. Although triangulation may not be necessary to the extent of finding consensus, it allows for the exploration of different views and comprehensively illuminates the important information and understanding of the processes being studied (Hales, 2010). Therefore, initial findings were presented at conferences to appropriate audiences from many disciplines including diabetes, public health and primary care. Presentations of the findings were also given to non-communicable disease and family health experts from the Ministry of Health and the researcher's university to obtain feedback from various stakeholders as part of the peer review process, and these presentations and associated discussions incited critical comments from a variety of perspectives. Preliminary findings were also presented at meetings at the district level with the head of family health, family medicine specialists, medical officers and nurses.

With respect to dependability, supervisors and myself discussed our agreement or disagreement on certain themes found in the transcripts (Greenbank, 2003; Shenton, 2004). I do not claim that this study has statistical generalizability because of the nature of the study design and the use of qualitative methods that focus on generating an in-depth understanding of family planning utilization. Rather, the meaning and ideology of transferability was used. Thus, attempts were made to assess the extent to which the findings from the data could be applicable to other women of reproductive age with a pre-existing illness attending primary healthcare facilities.

3.14 Self -reflection

A number of strategies can be used in order to maintain reflexivity throughout the duration of a qualitative study (Dowling, 2006). In this study several strategies were used to maintain reflexivity. Interviewing participants from various backgrounds gave an opportunity to me, to validate assumptions and findings. Also, the use of both a deductive and inductive coding frame during data analysis allowed me to make comparisons between the research findings and literature review. The deductive coding frame served as a reference to validate the themes emerging from the interview transcripts, thereby minimizing the influence of my assumptions.

My experience must be taken into account as it shaped the research questions and analysis of this study. Over a decade experience working in the field of health systems meant that, I was familiar with the current primary healthcare system. However, with the help of self-reflection, I maintained openness to the concepts generated from the data. This was helpful and essential in order to truly understand the study participants' perceptions on family planning utilization. My previous experience also allowed a better understanding of the participants' concerns which were compounded by their cultural and language barriers.

Furthermore, it allowed myself to be sensitized to the jargon used among the healthcare providers.

3.14.1 Handling of the data

The amount of data gathered from the in-depth interviews conducted with the T2DM women, their spouses and healthcare providers was huge. Therefore a systematic process was used in the analysis, where the first three transcripts were coded with the utmost care and focus. However, a large set of data or information can become difficult to handle. Therefore, discussions with supervisors enabled me to maintain focus during the data analysis process. The supervisors' perceptive comments also helped to reduce my personal influence on the analysis and ensure the validity of the data process.

3.13 Triangulation

Three types of triangulation was used to strengthen the research in this study, namely method triangulation, investigator triangulation and data triangulation (Hales, 2010). In order to address the research aim, four types of data collection method were used in this study. First, non-participant observations gave the researcher the opportunity to clarify of the current structure of the primary healthcare facilities and the consultation proceedings before the in-depth interviews were conducted. Second, in-depth interviews were conducted with T2DM women, their spouses and healthcare providers (medical officers and nurses). Third, field notes further supplemented the findings in this research especially as the notes recorded body gestures and expressions during the interviews. Each method was used to check the validity of data generated by another method and thus enhanced the rigour of the work. This approach also reduced the biases that can arise from the use of a single method.

In addition, investigator triangulation was applied during the analysis process, where multiple researchers (two supervisors and myself) took part in analysing and interpreting the

data. The data was constantly compared by the researchers to develop a deeper understanding of the findings.

This study also focused on different groups of people and healthcare clinics in the same district. The inclusion of different groups of study participants, for instance nurses and spouses, added to the variety of information sources. The findings from these different sources were compared for similarities and differences and any weaknesses in the data were compensated for by the strengths of other data.

3.16 Ethical Approval

This research protocol was approved by the Medical Research Ethics Committee (National Medical Research Register number NMRR-16-515-29341) as being in compliance with the accepted standards for human subjects. The protocol included an information sheet (Appendices 3 and 4) about the purpose of the study, the benefits of the study and clarification that participation in the study was voluntary. All the interview procedures were explained to the participants and written consent forms were signed before conducting and audiotaping the in-depth interviews.

In addition, as the study was conducted at primary healthcare clinics in Gombak District, a letter of permission was obtained from the Gombak District Health Office prior to conducting the study. Also, prior to the in-depth interviews, all the eligible participants were approached and briefed about the purpose of the study, the data collection process and how their confidentiality would be assured, and they were informed that the data would be used solely for purpose of the research. They were also provided with the chance to ask questions regarding the study. They were also informed about the voluntary nature of their participation and their freedom to withdraw from the study at any time. The information sheets for the research participants were provided in two languages (English and Bahasa Melayu) and were

given to those who agreed to be interviewed. Informed consent (see Appendix 2) was written in both languages and permission to record the interview sessions on audiotape was obtained from all the participants. The participants' demographic characteristics were acquired from the patients and spouses themselves and the healthcare providers (see Appendices 8 and 9).

I was obliged to protect the identity of the participants in order to ensure confidentiality and anonymity. Therefore, the participants' names were not mentioned during the interviews. Instead, they were addressed as Puan (Madam), Doctor and Encik (Sir). Prior to data collection, the participants were told about the use of audiotapes to record the interview conversations and that the audiotapes would be held. I was also responsible for guaranteeing the information contained in the audiotapes was kept confidential. Also, all the identifying information has been concealed in the transcripts and notes, and this thesis for reasons of confidentiality and privacy. All the data collected for this study will be destroyed later after the completion of this doctoral research.

3.17 Summary

This chapter provided a detailed explanation of the study methodology. In this study, a qualitative study design was employed, the non-participant observation, review of documents, in-depth interview and field notes were the methods chosen for the data collection process so that a wide range of views could be obtained. The data collection process took place in seven selected primary healthcare facilities. The purposive sampling method was used to recruit the participants for the interviews. An observation checklist and separate interview guides for T2DM women, spouses, medical officers and nurses were developed and used during the data collection process. The in-depth interview participants were chosen based on their fittingness for the purpose of this study, which was to explore the factors influencing family planning utilization. The interview guide included a set of prepared

questions that were asked during the interviews and a selection of probing questions that were asked at each interview accordingly. Thematic analysis was used to analyse the collected data. The results of this analysis are discussed in the following chapter.

CHAPTER 4: FINDINGS

4.1 Introduction

This chapter presents the findings of this study. Data was sourced from a sample of eight non-participant observations and 32 in-depth interviews that took place across seven primary health clinics in Gombak District. The interviewees consisted of eleven type 2 diabetic mellitus (T2DM) women, seven spouses, 11 medical officers and nine nurses. The in-depth interview findings were analysed using thematic analysis based on the research questions. Each theme identified by this study will be presented and discussed in relation to the three main groups: T2DM women, spouses and healthcare providers (medical officers and nurses) according to the social ecological model (SEM) (Bronfenbrenner, 1979). First, the chapter provides details of the results of the observations, then the descriptive statistics of the interview participants are presented followed by a detailed discussion of the in-depth interviews. The chapter concludes with a brief summary.

4.2 Findings from Non-participant Observation

Observations were done in this study to gain better understanding on primary healthcare environment and client-provider interaction. I observed the facilities system as well as during the consultations period between the T2DM women and provider. I who was also the observer, visited three healthcare facilities (two facilities which operated more than fifteen years and one operated for eight years) and observed eight consultation sessions (five medical officers and three nurses), to gain insight on the participant-provider interaction during the consultation period. A checklist was used for these observations. The following is the findings from observation of clinic work flow of the facilities, during the consultation and the challenges faced in primary healthcare facilities.

4.2.1 Physical Structure of health clinics

Observation was done at three primary healthcare facilities as I wanted to gain a better understanding of the environment at the study site. This includes two facilities which operated for more than 15 years and one operated for eight years. In general, all three primary facilities has provided space (either room or separated by screens or table) for consultations in MCH (about five consultation rooms) as well as OPD (about 7 consultation rooms), registration counter, pharmacy, and allocated separate rooms or space for breast feeding, vaccination, autoclave or utility, funduscopic, physiotherapy, methadone or tuberculosis, radiology (x-ray) and for emergency services. In MCH, the consultation rooms were shared with either two or three healthcare providers with one examination bed in each room. The examination bed is used to examine the antenatal mothers, child as well as performing procedures such as insertion of IUCD and Pap smear. There was one ultrasound machine placed in the medical officers' room, used for the entire facility. The two facilities which operated for than 15 years, has a smaller building and the space for waiting area is congested. As for the one facility which operated for eight years, the space is more convenient. Each of the facility, accommodate about 40 staffs (medical officers, nurses, clerk and support staffs).

4.2.2 Clinic work flow

Type 2 diabetes mellitus patients usually have clinic appointments during the morning session from Monday to Wednesday. In general, the majority of patients arrive as early as 7.30 am to either have their regular routine follow-up or because of illness. Typically, around 40 T2DM patients are seen throughout the morning session each day. This was confirmed by checking the follow-up registers at each clinic. This figure does not include defaulters (i.e., those who did not turn up for their appointment) and excludes the registration of other patients in the clinics. On busy days, the total patient attendance figure can be as high as 300

in the morning session. In each clinic, the patient load is managed by four staff members (clerks and assistants), two working at the registration table and another two looking for records in the record room and taking them to the doctors' rooms.

Some of the T2DM women bring their children or spouse with them to the clinic. The patients are given a serial number to ensure that there is a smooth flow of patients through the clinic (Figure 4.1). After registration, they attend the anthropometric station where a community nurse is stationed. Most diabetes patients fast overnight to get a fasting blood glucose measurement done at this station. At this station their blood pressure, weight and waist circumference is taken. They then return to the waiting area to wait for some time to see the diabetes nurse.

The patients are first seen by the nurses in a separate room. Two nurses are stationed in the diabetic screening room and execute a number of procedures, namely random blood glucose checking, blood results tracing and eye and foot inspection, as well as a urine test for those with high blood glucose. All the findings are recorded in the patients' diabetic follow-up book. These examinations take about half an hour for each patient. After these basic tests and examinations are done, the patient waits again in the waiting room for their follow-up consultation with the medical officer. Patients wait one hour or more to see a medical officer. As mentioned above, the nurses have a number of tests and examinations to perform on each patient. Medical officers not only see diabetes patients, they also have the responsibility of attending patients in the emergency room when required. Two medical officers share a consultation room.

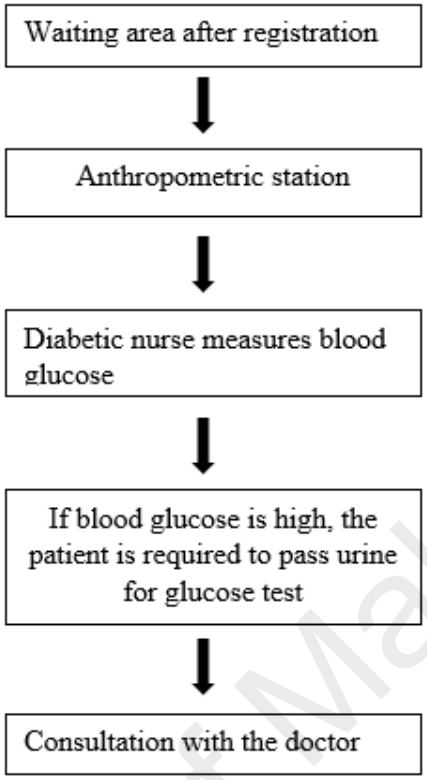


Figure 4.1: Clinic work flow for T2DM patients

4.2.3 Observation during consultation between T2DM woman and healthcare providers

Based on the observations, all eight providers (both medical officers and nurses) greets T2DM women with minimal eye contact when the patients enter the room. Most nurses greet the patients with minimal eye contact when the patient enters the room. Next of kin are not allowed into the room in order to maintain the privacy of the other patients in the room. It was noted none of the nurses ask the patients about their general condition, for example, compliance with medication, any recent symptoms of diabetes, and glucose self-monitoring at home based on the diabetic book. Only one nurse discuss family planning asked the patients whether they are a user of family planning and if they are using a family planning method, whether they are experiencing any side effects. The subsequent conversation is based on the questions posed by the nurses and answers given by the patient. The nurses do not discuss family planning with the patient's spouse. Throughout the observation period,

none of the nurses used any form of visual tool to help improve the patients' understanding of family planning.

During the observation period, all five medical officers also asked the patients questions related to diabetes. During the consultation with the medical officer, the next of kin are not allowed into the consultation room. Medical officers do not discuss the patients' reproductive goals, such as their desired number of children or future pregnancy plans except for two medical officers. When T2DM women ask about family planning issues, two medical officers focus on the usage and side effects of the different methods. They do not discuss family planning with the spouse. The consultation with a medical officer lasts for 10 to 15 minutes, and includes counselling on diabetes, an examination and the writing of a prescription. During the observation period, none of the medical officers used any form of visual tool to help improve the patients' understanding of family planning.

4.2.4 Challenges observed in primary healthcare facilities

As illustrated in Figure 4.2, there are three main factors contributing to low family planning utilization identified via non participant observation. Patient factors such as long waiting hours contributes to underutilization of family planning. Long waiting hours are contributed by clinic's long work from process, from registration up to collection medication from the pharmacy, which takes about three to fours hours. Due to number of patients which needs to be seen by the healthcare provider, either the waiting time increases or the consultation time reduces. Besides this, other commitments such as job and family contributes further to underutilization of family planning services.

The healthcare providers provides minimal counselling on family planning to T2DM women. This is mainly contributed by the shortage of time and patient load. In addition to that, medical officers do not only see T2DM patients, they also have responsibility attending

patients in emergency room when required. Besides managing the patient load with inadequate human resources, these staff members are also required to undertake administrative tasks as requested by the district office or doctors. Underutilization of family planning materials also contributes further for low uptake of family planning methods. This contributed further by shortage of time. Due to this long waiting time, patients answer questions posed to them in the simplest form to speed up the consultation process so that they can continue with their other commitments. Promotion also plays an important role in family planning utilization. Again, time has become an important contributing factor, besides non-avaibility of educational tools.

It is important that family planning facilities not only offer quality services but are also accessible. Seen in the widest possible context, factors such as operating hours, availability of health care workers, and related health services, play a determining role whether T2DM women use those services or not.

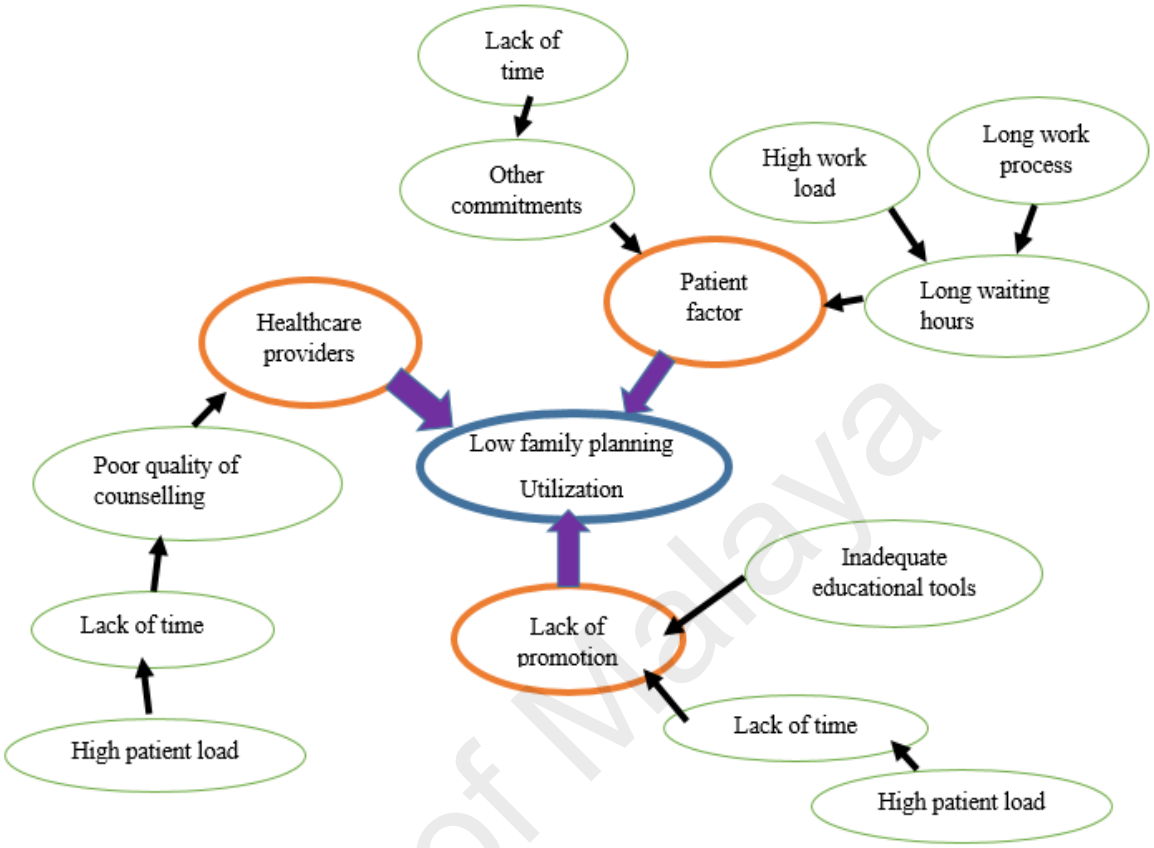


Figure 4.2: Challenges discussing family planning at primary healthcare facilities

4.3 Findings from Review of documents

Review of documents was done for two purposes, to gain insight into the current operation of family planning programme and statistics, as well as to gain understanding of the existing documents. Among the documents reviewed during this research was MCH indicator records of Gombak, diabetes follow-up documents, and pre-pregnancy cards. Eleven diabetes follow-up documents especially those who are involved in in deth interviews were reviewed. There were no documentation of family planning utilization in eight T2DM women's diabetes follow-up documents, while there were some documented side effects was seen in other three document. Upon five random review of pre-pregnancy cards, most of the information documented was not upto date, where it was only done during the first initiation of the implementation of PPC. There was no dedicated healthcare

provider and proper follow up for high risk patients as recommended by the guidelines. It was also noted from the registry that the number of defaulters to PPC clinic was also high. The findings from these documents suggest that it depended on the healthcare provider to ask on utilization of family planning.

4.4 Descriptive Statistics of the Interview Participants

4.4.1 Type 2 diabetes mellitus women

A total of 11 T2DM women (seven Malays, two Indian, and two Chinese) participated in the interview, the aim of which was to explore the factors influencing their utilization of family planning methods. Six of the women had completed their tertiary education (either university or college) while the remaining five had completed secondary education. More than half of them (seven participants) were employed.

Two T2DM women were pregnant during the interview and five women had a history of miscarriage. They also had antenatal follow-ups at the same centre that were managed simultaneously by the family medicine specialist for better care. Only two women were using a family planning method and another five women expressed their wish to conceive in the future. All of these women had two- to three-monthly follow-ups for diabetes at their respective primary health centre depending on their sugar control and compliance.

4.4.2 Spouses

Seven spouses (three Malays, two Indians and two Chinese) were interviewed with the aim of exploring the factors influencing their utilization of family planning methods. Three of them had a secondary school level of education and the remaining four had completed tertiary education. All of them were employed.

4.4.3 Healthcare providers

Twenty healthcare providers participated in the interview, which aimed to explore the factors influencing family planning services in primary healthcare facilities. Eleven medical officers and nine nurses were involved in this study. Eight of the medical officers were Malay and three were Indian. Most of them were female (seven participants). The medical officers had two to seven years working experience in primary healthcare facilities. The nine nurses involved in this study were all Malay and had working experience in primary healthcare facilities ranging from five to 12 years.

4.5 Findings from the In-Depth-Interviews

The interviews revealed that several factors influence family planning utilization. These factors are organized based on the SEM into individual-, interpersonal- and organizational-level factors. The factors are interrelated, so each factor is presented under the theme that is considered to fit it the best. Twenty-one themes emerged in this study; 14 themes identified factors influencing family planning utilization, while the remaining seven encompassed suggestions made by the healthcare providers to increase family planning utilization among T2DM women. The healthcare providers' views and perspectives on family planning utilization were based on their experience with both T2DM women and their spouses. In the following subsections, the findings are presented in accordance with the SEM levels and the themes that emerged during the in-depth interviews and are further subdivided by group of participant where applicable.

4.5.1 Factors influencing utilization of family planning

4.5.1.1 Individual-level factors by theme

The main aim in this study was to identify the factors influencing family planning utilization among T2DM women of reproductive age and the quality of family planning

services. This section explores the factors associated with family planning utilization and services at the individual level of the SEM, i.e., from the perspective of T2DM women, their spouses and healthcare providers, respectively. Note that the terms 'family planning methods' and 'contraception' and the terms 'T2DM' and 'diabetes' are used interchangeably in this section.

Theme 1: Knowledge on family planning

The T2DM women's and spouses' views and perceptions about the use of family planning methods were influenced by their understanding of diabetes and of family planning methods. The following findings convey the understanding that T2DM women and their spouses had on the disease and family planning.

a) Sub-theme: Knowledge about family planning and T2DM

- T2DM women

Based on the interviews, most T2DM women understand the need for family planning for at least two years. For example, one woman mentioned that it was essential for a woman to regain her health and have quality time with the newborn baby before deciding as a couple to have the next child. She also added that family planning was essential for her as she needed to breastfeed her child.

> *"You need to regain your health condition so that it's back to normal, the same as before you were pregnant. Then your health for your next pregnancy will be better. That way I will have enough time for my child and it's important for me as I'm breastfeeding my baby. I can breastfeed for at least two years." (T2DM woman 3, 39 years old, para 3)*

Most T2DM women were equipped with information on diabetes and especially pregnancy complications. They were aware of the possible complications that can occur to both mother and child. Some women knew about the complications after personal experience.

> *"I'm more concerned about family planning now, as I know more about diabetes. I know now what the effect of disease is on me, my baby and in the future. In 2015, I got pregnant, but had a miscarriage within two months. I know it must have been due to my high sugar. I did not tell anyone about it because I know it's my fault for not taking medications for my illness. Actually, at that point of time, I did not expect that diabetes would affect my pregnancy. After this current pregnancy, I plan to use family planning." (T2DM woman 3, 39 years old, para 3)*

Some T2DM women had minimal information on the disease; however, they were very much concerned about the effects of T2DM on the baby.

> *"I might get a big baby due to diabetes complications. My children will all be handicapped. I don't want that to happen. I'm also obese and need to lose weight. So the doctor advised me not to get pregnant for now." (T2DM woman 2, 28 years old, para 2)*

Only two of the women were able to name some of the common pregnancy complications associated with T2DM. The others, even though they admitted that they knew the risks, were unable to mention any specific complications.

> *"I'm more concerned about diabetes now as I know some things are associated with this illness. With my first child, I got admitted to hospital many times because my sugar level was not consistent. Sometimes the sugar became low and vice*

versa, until the hospital became my second home. I have to decide if I want to proceed with this pregnancy, then I'll have to be disciplined to comply with the diabetes treatment as well as with my food. I had a miscarriage before because my sugar was high. Hence, the doctors have advised me on family planning way before I deliver so that the decision can be made earlier." (T2DM woman 1, 38 years old, gravida 4, para 2+1)

Although most of the women interviewed had some knowledge of family planning, they were still reluctant to use it. One woman stated that, even though she went for a proper follow-up and the clinic supplied family planning medication, she still opted for the natural method and had a miscarriage subsequently. Another woman mentioned that she and her husband used the natural method:

"I'm well aware of the complications of diabetes for my pregnancy. I planned my first and second child using the calendar technique, so I think both me and my husband can still use that technique. We don't have to use any family planning methods." (T2DM woman 5, 31 years old, para 2)

- Spouses

The interviewed spouses knew a considerable amount of information about family planning and diabetes. The spouses had views that were similar to those of their partners. However, their reasoning was more financially orientated.

"I know family planning is for financial reasons. Nowadays, both the husband and wife need to work or they not cannot survive financially. Moreover, before marriage, we had already decided to have only three children. Now that we have three, we have stopped having children." (Spouse 2, wife with T2DM 4 years)

- Health care providers

The interviewed healthcare providers believed that the level of understanding of the disease and importance of family planning depended on the T2DM women's education level. They stated that some of the women could understand and absorb the information easily when it was explained to them by the providers, whereas others did not have any clue about the disease or family planning. This view is exemplified by below.

> *"I think it depends on the individual. It depends on the age group the woman falls into, their education level and their family background. Many of them are interested in knowing about family planning but most of them place a big wall in front of themselves (laughs). They will eventually welcome our advice after consistent talking, and yeah, they will be ok with it." (Medical Officer 5, 5 years of experience)*

b) Sub-theme: Types of family planning

- T2DM women

When asked about the choices of family planning that were currently available, most women mentioned the four common methods, namely pills, intrauterine devices (IUDs), injections and condoms, which are methods that primary healthcare facilities generally offer. Only a few women mentioned implants and one mentioned the male sterilization technique, the vasectomy, which is not available in primary healthcare facilities.

> *"I think the clinic has pills, condoms, IUDs and implants… a male technique is also available but I think it's not so well known. So far I'm only familiar with only these methods." (T2DM woman 1, 38 years old, gravida 4, para 2+1).*

- Spouses

The common methods that the spouses mentioned were pills, injectables and condoms. Other long-term methods, for instance, implants or sterilization, were not mentioned by any of the spouses.

> *"The ones I know are pills, the injection and condoms. My wife used to take pills and the injection, that's how I know. But she is not using any method now. We use a condom occasionally (laughs). I have heard about intrauterine devices from her, but she didn't talk about it much. Maybe she was not interested, so she didn't talk about it further." (Spouse 4, wife with T2DM 3 years)*

c) Sub-theme: Benefits of family planning

- T2DM women

The T2DM women who were interviewed were aware of the advantages of utilizing family planning. Besides the health benefits, one T2DM woman stated:

> *"Family planning is one of the ways of planning for a family of course, and with the financial and economic impact now, for me it's very practical and good (laughs). Once you have a child, it's not only about feeding the child, it also includes education and insurance because you expect to provide the best for your child. Some amount of investment is needed for each child. So, for me it's good to plan for better financial status." (T2DM woman 1, 38 years old, gravida 4, para 2+1)*

The findings of this study highlighted that T2DM women had sufficient knowledge of the importance, methods and advantages of family planning. For example, the advantages included restoring one's own health, better pregnancy prognosis, reducing complications for

the baby during pregnancy, and gaining stability financially. The interviews also revealed that there are changes in perception on family planning due to recognition of the benefits of family planning to the household economy. As regards the providers' views, they felt that the education level of the T2DM women was one of the influencing factors for the utilization of family planning.

Theme 2: Choice of family planning methods

Another objective of this study was to explore the choice of family planning method. Hence, the various factors influencing T2DM women's choice of family planning method were explored in the interview. The findings are presented below.

a) Sub-theme: Short-term practices

- T2DM women

According to the World Health Organization (WHO) eligibility criteria guidelines, at-risk women are encouraged to use code 1 family planning methods, such as pills, injectables and IUDs, depending on the risk faced by the individual woman. However, when this issue was explored further in this study, condoms and natural methods were the most widely used. Multiple factors need to be considered by T2DM women before choosing an appropriate method. Many of the women interviewed gave priority to their spouse's needs rather than their own.

> *"To utilize family planning methods, there must be some amount of understanding between the wife and husband. Honestly, my husband doesn't like to use condoms. He said it wasn't comfortable. He prefers to use the withdrawal method." (T2DM woman 1, 38 years old, gravida 4, para 2+1)*

Intrauterine devices were viewed as a foreign object by some women. This seemed to be the main factor for most women not choosing IUDs as their preferred family planning option.

> *"I think it's not normal to have a device in the body when we can go for methods which are temporary. Something like, you use it when you need it. Hence, I thought the condom would be the most convenient and easy for now." (T2DM woman 3, 39 years old, para 3)*

- Spouses

Most of the men in this study mentioned that the choice of family planning depended on their wives. They stated that their partners chose the method depending on the wife's preference and the side effects.

> *"Usually, I will just follow what my wife wants. But if she is concerned about something, we will have a talk. I will tell her that if you think you are not comfortable, you can always look for alternatives. So far she has had no problems. She is using an intrauterine device for now." (Spouse 4, wife with T2DM 3 years)*

The T2DM women were aware of the different methods available at primary healthcare facilities. Non-hormonal methods were popular among T2DM women. Long-term or permanent methods such as Implanon and the vasectomy were the least popular among T2DM women. The T2DM women stated that they were willing to use condoms when they were not in a safe period (i.e., when they were fertile). They also stated that natural methods were as effective as modern contraception because they could calculate their menstrual cycle well enough to know when it was safe or not, in order to avoid pregnancy. As for the spouses,

the choice of family planning was left on the wife's preference.

b) Sub-theme: Usage of traditional methods

- T2DM women

The T2DM woman interviewed in this study, practiced traditional method as their family planning method which was perceives as safe for them.

> *"The older generation and some of my neighbours suggested boiled okra or pegaga (pennywort leaves) for spacing. This was better than medications, as it can affect the kidneys. I also followed since I know diabetes can affect my kidneys in years to come and it was natural preparation." (T2DM woman 1, 38 years old, gravida 4, para 2+1)*

- Health care providers

Some healthcare providers felt that T2DM women were comfortable using traditional methods because they had inherited their views from their mother, mother-in-law and friends or even from their social network.

> *"Some of them are not afraid of going for a traditional method, even though there is no KKM [Kementerian Kesihatan Malaysia (Ministry of Health, Malaysia] logo on it … (laughs)….They ask me if it's ok. But these woman are not in favour of a proper evidence-based hormonal contraception or non-hormonal contraception." (Medical Officer 5, 5 years of experience)*

One nurse remarked that some of the T2DM women willing to use traditional preparations or methods because they had support to do so either from their spouse or family members.

"Most of the time there is no support for using modern family planning from the family or husband. Some will prefer to use 'petua lama' like 'jamu' (tradisional preparation) through their mothers. They believe in that method more. We try to explain that 'jamu' is not a family planning method, but they will reply: 'I have tried it before and it worked'." (Nurse 3, 7 years of experience)

Among the family planning methods chosen by T2DM women, the non-hormonal and traditional method was preferred. It was seen as an unnecessary to risk perceived complications and procedures when easier methods were available with minimal risk such as barrier and natural methods. It also seemed that past experiences had influenced their adoption of traditional methods. The T2DM women who had had a successful history of using natural methods previously were more likely to use the same method again. In this study, T2DM women perceived traditional methods to be more effective than modern family planning. They expressed that they were more comfortable using traditional methods because of their past experience of using family planning methods and such methods did not have obvious side effects, unlike modern family planning methods.

Theme 3: Preferred facilities for family planning services

The Malaysian healthcare system offers the ability to choose family planning services either from public or private healthcare. There are many institutions and outlets such as private clinics, pharmacies and Lembaga Penduduk dan Pembangunan Keluarga Negara (LPPKN) that offer different forms of family planning method to clients.

- T2DM women

Most T2DM women in this study were able to mention a few alternative sources of get family planning services other than primary healthcare facilities. Among the ones mentioned were government hospitals, LPPKN, pharmacies and department stores.

> *"We can get family planning methods from private clinics, like pills. My friend said LPPKN also provides family planning methods, because she gets them from there." (T2DM woman 5, 31 years old, para 2)*

Some women said that they get supplies at their routine follow-up.

> *"I've seen in 7-Eleven stores that they sell condoms and also in pharmacies. I can get condoms everywhere. But I get them from here [the clinic] when I come for regular check-ups." (T2DM woman 3, 39 years old, para 3)*

Government facilities were the preferred source for obtaining family planning methods such as pills and injectable contraceptives. For instance, the T2DM women stated that they obtained their supplies when they came for routine diabetes follow-up, as mentioned by the participant above. This option may be influenced by the cost imposed on clients for utilizing family planning methods outside government facilities such as when purchasing them from pharmacies or department stores.

Theme 4: Avoiding complications

In the context of this study the term 'side effects' refers to the negative outcomes from the family planning method used in relation to the clients' expected outcomes. From the interviews with T2DM women, their utilization of family planning methods depended on the side effects and they preferred using a method with no side effects.

a) Sub-theme: Menstruation

- T2DM women

Many T2DM women were concerned about the side effects of using family planning methods. Some women related the experiences of other women to their own, and this seems to have led to their underutilization of family planning methods.

> *"Some said their menses was not regular when they used an implant, even after they had removed it. Because of that, it's difficult for them to get pregnant again. I'm not willing to use it. I want to have more children." (T2DM woman 4, 31 years old, para 2)*

- Health care providers

The healthcare workers felt that side effects are one of the major contributing factors to family planning utilization. They said that their patients experienced a range of side effects when using hormonal family planning methods, especially in relation to menstruation.

> *"The most common complication is not having menses. Because some women feel they are 'less of a woman' when they are not having menses…(laughs)….Usually if this kind of problem happens they opt for…errr…IM Depo Provera. When they think they feel less feminine (giggles) as they are not having menses, we offer to switch them to OCP [oral contraceptive pills]. But if they have menorrhagia…I would say maybe they should go for a non-hormonal kind of contraception if they are ok with it." (Medical Officer 5, 5 years of experience)*

Another provider stated:

> *"The moment we mention contraception, the first thing they think of is the side effects like increased weight or acne and menses problems. It's difficult to convince them when they have this pre-existing mindset." (Nurse 8, 5 years of experience)*

b) Sub-theme: Physical appearance

- T2DM women

In general, most T2DM women are either obese or morbidly obese. The usage of hormonal family planning is perceived as a definite weight gain, which is a challenge for T2DM women.

> *"My appetite increased after I started using pills. I think I put on weight because of the pills. Once, my husband commented that I was becoming bigger, so I stopped taking the pills. Then he agreed to use a condom." (T2DM woman 2, 28 years old, para 3)*

- Spouses

Some of the spouses mentioned that their wives had put on weight due to using contraceptive pills. The husbands felt that their partner had the right to choose not to use family planning if she was concerned about her physical well-being. From their responses, most of time, they support their wife's decision and use either a natural method or a condom as a protective measure.

> "*Initially my wife used pills. She started putting on weight and was constantly complaining to me about that. So I said, 'If you think you are putting on weight,*

why not try other methods?' We both reached an agreement just to use a condom. So much easier. No more complaints (laughs)." (Spouse 3, wife with T2DM 2 years)

- Healthcare providers

The findings derived from the interviews with healthcare providers were similar to those gained from the interviews with T2DM women and their spouses with regards to weight issues. In general, physical appearance such as weight gain and acne problems, as well as effects on menses, were the main concerns among T2DM women despite receiving counselling on diet and exercise.

"Most of the time, diabetic women are more afraid of gaining weight. It's difficult to convince diabetic women that not all family planning methods have complications like weight gain. Especially when they are already obese and have difficulties to reduce weight due to diabetes. Hence, they reject family planning." (Medical officer 11, 10 years of experience)

c) Sub-theme: Sex life

- T2DM women

From the interviews, it was clear that T2DM women gave importance to their spouse's needs. The inability to satisfy their husband's needs due to side effects was one of the reasons for underutilization of modern family planning methods.

"I heard from people that if they used intrauterine devices, their husbands complained. It will not be comfortable especially during intercourse. Their partners also felt pain. I don't want that to happen to my relationship." (T2DM woman 4, 31 years old, para 2)

- Healthcare providers

The healthcare providers stated that the women were worried that family planning methods might have an effect on their sex life. They also heard from their patients that the use of family planning methods took away the pleasure during sex and therefore their patients thought it was not appropriate to use any.

> *"If we give an injection, it is so much easier than pills because they come [to the clinic] only every two months, but the problem is, they have this like non-stop kind of bleeding or staining. So they complain that they cannot be with their husband, hence their sex life is not good. When this issue arises, it's difficult for us to give them IM Depo. When we suggest an IUCD [intrauterine contraceptive device], they are afraid because of the procedure of inserting it. Another assumption is that when an IUCD is used, the husband will feel pain during intercourse or the device will get displaced on its own, leading to dangerous health issues" (Medical Officer 7, 5 years of experience)*

Another provider stated:

> *"One of my patient complained to me before that since she had started on injections she wasn't able to reach the 'peak' as before. She also mentioned that she had vaginal dryness and this made her so uncomfortable. I did tell her to switch to another method, but she refused. She is currently using condoms." (Nurse 9, 11 years of experience)*

d) Sub-theme: Fear of the method and pain

- T2DM women

In the interviews, the T2DM women talked about their personal or friends' experiences of suffering from pain during or after a family planning procedure or suffering from various side effects. Many said that they had stopped using family planning methods without consulting with healthcare providers.

> *"I did use pills but unfortunately only for three months. To be very honest, I had a very difficult time taking those pills because at that period of time, it felt like another pregnancy had taken place. I was so nauseated and nervous. I had difficulty going back to work. Being a working mother with so many problems including taking care of the newborn every day, it was so difficult. So after three months, I just couldn't take it anymore. The nurse told me it would take some time to get adjusted to it. But I really had problems and couldn't tolerate it anymore. That's when I diverted to the condom." (T2DM woman 3, 39 years old, para 3)*

While some women did not like the idea of having some device (which is presumed to be a foreign body) inserted in them, some had a fear of developing further complications such as breast or ovarian cancer.

> *"I wanted to have an implant until my friend told me her story. The doctor couldn't find her implant when she went to remove it. The doctor had to do a deeper incision to find it. That's scary." (T2DM woman 2, 28 years old, para 3)*

Another woman asked:

> *"What if I still get pregnant despite using an intrauterine device? Will my baby's head get stuck to it?" (T2DM woman 6, 39 years old, para 5+2)*

When probed further about whether they had asked their providers about these issues, they admitted they had not sought clarification from their providers.

- Healthcare providers

The healthcare providers considered that perception of side effects were based on misunderstanding of family planning methods, and it can cause further health problems if underutilized. Many providers mentioned that they usually explained the procedures that would cause minimal side effects. However, T2DM women still rejected the suggested family planning procedures. Also, the majority of healthcare workers stated that explaining the side effects of family planning methods was time consuming.

One provider stated:

> *"Rumours from the public influence a patient so much. Because patients usually will come with a lot of [preconceived] thoughts about contraception. Mitos (myth). Let's say for instance, an IUCD can cause pregnancy and the pills can cause cancer…eerrr…like that (laughs)." (Medical Officer 11, 3 years of experience)*

Also, one provider mentioned that post-procedure symptoms were viewed as 'dirty' by some T2DM women.

> *"She will be stigmatized… they don't like to use it [IUCD] because it's dirty, difficult and the main thing is the pain. Actually, that's not true. They will feel crampy, but after that it should be ok. They fear bleeding as well." (Nurse 2, 7 years of experience)*

Providers also felt that T2DM women may opt for non-hormonal rather than hormonal methods. However, the women tend to withdraw due to similar reasons as mentioned above.

> *"They are more afraid of hormonal contraception. We have a limited choice of non-hormonal methods, we only have IUCDs and condoms. When we show them what an IUCD looks like, they freak out...(giggles)…. In the end, they don't use any family planning methods, and here comes all those poor spacings and everything." (Medical Officer 5, 5 years of experience)*

The providers also stated that some T2DM women prefer to use methods that cause minimal harm to their body.

> *"They fear having an IUCD because they have no experience of it. If [we suggest] Implanon, they are scared about the incision. They prefer to use harmless methods like condoms and pills." (Nurse 5, 10 years of experience)*

It is clear from the above extracts that T2DM women's family planning choices depended on the actual and perceived side effects of the respective methods. It is worth noting that in the context of family planning, the discussions in the interviews were largely related to sexual desires and physical appearance rather than health improvement. However, this might not be an indication of the marginalization of the health aspects, but rather a reflection of individual needs. Many of the T2DM women talked about their personal experiences or information received from other sources about suffering from various side effects caused by family planning methods. Moreover, women were under the impression that family planning procedures such as inserting either an IUD or an implant were terrifying, while others mentioned that foreign devices could harm the baby if they had unplanned pregnancy.

Furthermore, most women stopped utilizing family planning methods without first consulting healthcare providers. In general, these findings illustrate how side effects, either experienced by the individual or by others, affected the continuation or discontinuation of family planning methods. Also, given the strong ties among the couples in this local setting, the findings indicate that focusing only on the perspective and needs of the T2DM women might not actually be congruent with their needs.

Theme 5: Level of provider' expertise

a) Sub-theme: Low confidence

Nurses serve as the frontliners in primary healthcare facilities. Most patients who utilize primary healthcare facilities will approach the nurses if they doubts or questions. However, some providers felt that, apart from the providers working in MCH, those who working in the outpatient department (OPD) had little information to offer clients especially in relation to family planning issues.

> *"The nurses in the MCH unit are quite confident about talking about family planning. As for the nurses who are in the diabetic, hypertension clinic, in the high-risk clinic, as well as in the general clinic, their knowledge about family planning is almost nil. They refer all the women who want to utilize family planning to us, even though it can be done there…..(sighs). Not all nurses know about contraception…err…it's a struggle to give them the knowledge, especially if the nurses haven't worked in an MCH unit before… (frustrated)." (Medical Officer 11, 3 years of experience)*

This issue not only concerned nurses; some providers admitted that they themselves have had little exposure to family planning counselling. Hence, providers only tell patients about family planning methods when asked and only provide superficial information.

> *"I'm also not confident about how to counsel the patient who needs family planning, so it's better not to give false information to the patient. We don't understand how to counsel the patient. During undergraduate studies we don't really get involved in that. How do we counsel the patient? I think I need proper seminars and education before I can educate other people." (Medical Officer 10, 4 years of experience)*

One provider stated that the level of confidence that patients had in healthcare providers depended on how knowledgeable the healthcare providers were. In general, the provider mentioned that colleagues' knowledge of family planning was also poor.

> *"Some of the medical officer don't know that Implanon is actually inserted under the skin. They think Implanon is an IUCD… (both interviewer and interviewee laugh). It's about ourselves …when our staff don't encourage… [are] not confident enough to offer contraception, the patients are not interested [either]." (Medical Officer 11, 3 years of experience)*

Another provider stated that it was very challenging when a nurse did not know much about family planning as it was fundamental to know about this issue when working in primary healthcare centres. The provider also added that it was difficult to advice patients when some providers failed to have a proper pregnancy spacing themselves.

> *"I think all nurses should know how to counsel patients on family planning regardless of where they are stationed. Nurses should know common things like*

family planning because it's something that is common in this health facility. One more thing, how many nurses here are actually using contraception? I think most of our nurses here also have poor spacing. If nurses are like that, how are we supposed to tackle the patients?" (Nurse 6, 8 years of experience)

Another provider stated that some nurses do not understand the basics of family planning, so some clients had a bad obstetrics history due to a single piece of incorrect information.

"I had a patient who actually got pregnant, [and she had] poor spacing, and when I asked, 'Why didn't you start on family planning?' she answered, 'Oh, the staff nurse said I had to wait for my menses'. I was like, since when? (laughs)... Actually, sometimes people have poor spacing and complications because of a single piece of information is wrong … (laughs)." (Medical Officer 5, 5 years of experience)

When someone has little or no knowledge of the basic health issues, the information delivered may not only be incorrect, it may also lead to a negative experience. This results in providers facing a further challenge in convincing T2DM women to utilize family planning methods.

b) Sub-theme: Soft skills

Communication skills constitute an important skill that needs to be mastered by all healthcare providers, especially when they are involved in counselling at-risk patients. Some T2DM women may have perceived negative thoughts about family planning and this needs to be addressed. However, regardless of the type of client providers are dealing with, proper communication is needed. Providers can be judgemental when a T2DM woman refuses

family planning services. Providers need to consider many factors before making remarks to their clients. During regular follow-ups, health workers should welcome T2DM women in a friendly manner and make them feel as comfortable as possible to gain more information about their refusal.

> *"Probably the person who gives the advice is not trained enough in how to explain contraception in an effective way. Some can be judgemental when asked about contraception. Probably some patients have other priorities to think about rather than taking contraception. Maybe they have personal problems, other motives and objectives. For example, maybe they want a certain amount of children before they reach a certain age. It's very hard to give advice when one doesn't have the skills to do so." (Medical Officer 8, 4 years of experience)*

c) Sub-theme: Techniques

Medical officers in primary healthcare centres are expected to learn some skills especially regarding IUCD insertion. However, due to a lack of training, providers refuse to insert or recommend IUCDs to clients who are eligible. One provided stated:

> *"Basically I learnt IUCD insertion from my senior doctors. We don't have proper training by a specific person. Most of us have been learning through friends." (Medical Officer 5, 5 years of experience)*

Provider knowledge is perceived as an important factor in a client's decision to utilize family planning. In the interviews, some providers agreed that their knowledge of family planning was not sufficient to counsel clients. This leads to the avoidance of discussing family planning. Being able to communicate and being able to provide counselling for women are very important in delivering family planning services. Counselling or listening to

T2DM women's concerns makes a difference to these women, and may make the difference between them using or rejecting family planning. The provider's skills and techniques and counselling delivery will reflect on themselves. For example, if providers doubt their own statements on family planning, T2DM women will not be able to make a proper decision about family planning utilization especially when they observe an uncertain reaction from their provider.

Theme 6: Roles and responsibilities

Throughout the interviews, the healthcare providers themselves often questioned their roles and responsibilities in regards to family planning. For instance, the nurses felt that they had a heavy burden to bear because not only did they see patients daily, they were also required to do administrative work. They were disappointed that a patient's decision to not utilize family planning was seen as the fault of the nurse in charge. This can lead to conflict in the workplace.

> *"Most of the activities in this clinic are put on the nurses' shoulders. From family planning and teenage pregnancy to promoting health (includes family planning, breast self-examination, Pap smear and etc), everything must be done by the nurses. I think the responsibility burden should be segregated. And I think the OPD [outpatient department] nurses also must spend time talking to T2DM women about family planning. They hardly talk about family planning, but they will refer patients to us after they are already pregnant. Maybe they don't emphasize family planning there." (Nurse 5, 10 years of experience)*

On the other hand, some medical officers expressed the opinion that most nurses do not do their job as expected. Some providers felt that nurses as frontliners should be offering

basic counselling on family planning before the client meets the medical officer. They felt that counselling sessions on family planning could be done effectively through teamwork.

> *"Usually, patients will go to our staff nurse first, and then to us. Staff nurses needs to educate the T2DM women regarding family planning before they come to see us. It's actually teamwork. Everybody needs to play a part from our paramedics to the doctors." (Medical Officer 6, 2 years of experience)*

Another medical officer stated:

> *"Nurses as frontliners mostly lack interest and knowledge as frontliners. Most of the time, we are rushing to finish up cases. Nurses are lacking a sense of responsibility. They don't emphasize family planning as strongly as the doctors." (Medical Officer 3, 7 years of experience)*

However, some nurses expressed the view that it is not easy dealing with patients who refuse to listen.

> *"We are also human. We only can tell them up to a certain point. After that we also get fed up and refer to a doctor. Some will still refuse, so we just let it be. Time is our enemy. If we had less patients we could talk a bit longer to patients. Sometimes our basket is full of cards. So nurses tend to have an 'indifferent' attitude. Patients who are waiting outside will start asking when their turn is. So we can't afford to give adequate information to patients, so they don't come back to us. Honestly, it's very frustrating. Most of our women fail to plan. If they are successful we are more than happy. If unsuccessful we feel disturbed and stressed. Sometimes we can't say whose fault it is. Maybe the counselling method is*

inefficient, or the work burden or something else." (Nurse 6, 8 years of experience)

Another nurse stated:

"We will refer to doctors if clients have still not decided on the type of contraception they want to opt for. Because nowadays women are more educated, they feel that what I say is almost the same as what they have discussed with their friends. So we refer to doctors for a better explanation." (Nurse 3, 7 years of experience)

Providers also felt that there was lack of cooperation between staff in delivering family planning services.

"If the patient conceives before completing [a] two-year [spacing], it's the nurses' fault also. The nurses may not have done proper defaulter tracing or did not check if patient was taking her pills the right way. For me, if I know the patient is not complying with their medication [regime], I'll ask them to switch to other methods. Even after the woman goes back to the OPD for her T2DM follow-up after six months, there should not be any problem in monitoring whether a woman is following her family planning method well or not, because for the first two years mothers will bring their child [to the clinic] for routine follow-ups and immunization. So it's our duty as nurses to make sure they are on contraception." (Nurse 5, 10 years of experience)

The point was raised that clients who wanted to use family planning services should be given the opportunity to discuss their fears and concerns as well as other health issues,

and that providers must be prepared to be flexible enough to address them. Meantime, there were also providers who self-blamed when the services were not delivered well.

> *"It's actually our fault….. (Laughs)… I blame myself …I feel, I 'gagal' (fail) in preventing them from getting pregnant at the right time. Because it's my responsibility to make sure that this kind of patient has contraception. It's our job right, our responsibility to offer them family planning and to take care of this kind of patient because it can cause high mortality and morbidity…ahh." (Medical Officer 11, 3 years of experience)*

The providers, both medical officers and nurses, also felt that the current working environment is not healthy for delivering better family planning services. This seems to be due to the minimal interaction between providers, which leads to some misunderstandings and conflicts among them. The providers also stressed the weight of the heavy responsibilities they had to carry on their shoulders in addition to providing counselling and family planning. The medical officers argued that the nurses should take up the initiative to counsel T2DM women and provide them basic information on family planning. However, among the nurses there was a difference of opinion; one nurse mentioned that one T2DM woman preferred to talk to the medical officer while another stated that it was the duty of the nurses to counsel T2DM women until they agreed. Some nurses also mentioned that, in primary healthcare facilities, most of the programmes are run by the nurses and therefore they cannot focus on every health aspect when dealing with T2DM women.

Nurses felt burdened with the amount of responsibilities they were carrying in primary healthcare facilities. There is also a tendency to blame each other when problems occurred in the facility as there seems to be no proper understanding between medical officers and nurses. For instance, medical officers need to understand the challenges the nurses face

such as answering clients' questions that are beyond their scope. Moreover, it is more challenging to answer questions to the clients' satisfaction when information is readily available to clients. Also, emotional stress builds up when providers are unable to convince clients to use family planning as it is perceived as their duty to ensure their clients' health.

Theme 7: Gender preferences and language

a) Sub-theme: Counselling by male provider

In a multicultural society such as Malaysia some issues are not openly discussed, and it is sometimes more difficult to discuss certain health issues when the healthcare provider is a male, especially with regards to family planning. The interviewed health providers felt that being a male provider was itself a barrier to family planning utilization. They also expressed the view that clients were unable to express their concerns on family planning issues due to their shy nature. The providers also mentioned that T2DM women were shy about discussing side effects, such as a decrease in sexual pleasure, with a male healthcare provider. Some providers felt that clients feel more comfortable talking either to a female provider or to a female provider who has herself been pregnant before.

> *"I guess it's the culture. The majority of patients are shy and they feel more comfortable talking to female doctors. They do talk to us male doctors but if they see a female doctor who has been pregnant before, with the same background, it's easier for patients to open up." (Medical Officer 6, 2 years of experience)*

Another provider stated:

> *"The thing is patients don't really open up about their family planning. They are really shy. So when we try to talk about condoms and any other barrier methods,*

they will answer 'doctor, self-methods la' and then they want to rush out." (Medical Officer 4, 3 years of experience)

The medical officers also felt that nurses could make a huge difference to patients, especially in discussing family planning methods. One provider stated:

"I do think staff nurses can play a role because I mean, firstly, they both can have a woman-to-woman talk. Sometimes they can get to understand each other. When a male doctor talks to female patients, they have a bit more boundaries or barriers. I think a female staff nurse can get more information and counsel the patients more." (Medical Officer 6, 2 years of experience)

b) Sub-theme: Language makes a difference

The providers admitted that many among them, especially medical officers, were unable to explain family planning in general terms. They acknowledged that they were more prone to using medical terms or language that might not be fully understandable for some women.

"Sometimes I see my colleagues use medical terms when they are talking with patients. It can be as simple as 'OCP' or 'Depo'. Patients then just stare at us blankly (laughing). It happens when we are talking fast." (Medical Officer 11, 3 years of experience)

One provider mentioned that talking in the Malay language was an added advantage in terms of helping patients to gain a better understanding of family planning methods.

"They are able to understand when the medium of communication is Bahasa Melayu. I'm able to tell them how it works. They can understand, for instance,

how the methods work, and they can choose the method which suits them the most." (Medical Officer 4, 3 years of experience)

Overall, providers felt that avoiding the usage of medical terms during consultations would be useful for T2DM women to understand better the context of family planning.

4.5.1.2 Interpersonal-level factors by theme

Theme 1: Autonomy in decision-making

The objective of this study was to understand the family planning decisions made by T2DM women, but it is important to recognize that family planning utilization can be influenced by others including family members and also by the manner in which information is received from healthcare providers. It is mostly argued that the husband has the most influence on a woman's reproductive life. This section therefore analyses the extent to which the spouse can influence a woman in decision-making with regards to family planning. The influence of other family members is also considered.

a) Sub-theme: Gender roles

- T2DM women

In this study, it was necessary for the researcher to ascertain the extent to which the husband and other family members influenced T2DM women's decision to use of a particular type of family planning. Two women in this study said that their husbands usually let them to make the decision themselves.

"My husband's style is 'what do you have in mind? Which do you prefer?' He doesn't mind as long as I don't mind (laughs)." (T2DM woman 1, 38 years old, gravida 4, para 2+1)

Another woman stated:

"I make the final decision on which method I want to use. He is the type of person who would actually accept the method, even if he is not keen on the method. If he thinks that I am comfortable with it, he will go along with me." (T2DM woman 3, 39 years old, para 3)

However, it can still depend on whether a partner is comfortable using the chosen method or not. One woman mentioned that her husband did not allow her to use any form of family planning method despite knowing the risks. He wanted to have as many children as he could even though his wife had a bad obstetrics history.

"My husband says, if he can he wants 12 children. Having many children is good as they can take care of us when we are old." (T2DM woman 6, 39 years old, Paras 5& 2)

- Spouses

The spouses who participated in this study had a range of views on making decisions related to family planning utilization. One participant said that he decided on his wife's usage of family planning methods and that the decision was based on the age of his partner.

"There was one time when my wife asked me about family planning after she had a check-up with the specialist. But I think it's not necessary for her to use it now…she is getting old. She was fine all this while, so no problem. And it's good to have more children." (Spouse 1, wife with T2DM 6 years)

Another man mentioned that the family planning decision was made as a couple after they had discussed it between themselves.

"We made the decision to use contraception together. It's actually up to her to use what she wants, whatever she is more comfortable with. I advised her that

her health is also important, so…yeah…we made the decision together. Of course we got advice from the doctor as well." (Spouse 3, wife with T2DM 5 years)

Another spouse stated that he and his wife never discussed family planning. Another participant said that his wife never mentioned family planning to him after her routine check-ups over all the years she had been attending the clinic.

- Healthcare providers

According to most of the providers, the spouses had a greater say compared to their wife in the utilization of family planning methods and were involved directly in determining their wife's health needs. When healthcare providers talked about utilization of family planning to their female clients, most of the clients were unable to make a decision and needed some form of discussion or permission from their husbands. However, most of the time, the result of the discussion remained the same.

"Sometimes the husband will disagree with contraception. What makes him not agree …either because of experience, listening to peers or…he believes in some other traditional method. He believes that contraception can cause infertility in the wife or it is very bad for her health." (Medical Officer 1, 6 years of experience)

There were providers who felt that there were T2DM women who were able to understand the various methods and make a decision during the counselling meeting. This may be due to good insights about the disease or their previous experience. The healthcare providers thought that the social and education background of the women played an important role in the women realizing the crucial need for family planning utilization.

"Yeah, T2DM women choose during the consultation because some of the patients have prior knowledge, so sometimes they are here to clarify and are able to choose at the time when they are being counselled." (Medical Officer 4, 3 years of experience)

b) Sub-theme: Engaging with the providers

From the interviews it is clear that healthcare providers contribute hugely to the decision to utilize family planning through counselling patients, and that this counselling is an important factor in influencing T2DM women's decision to utilize family planning methods. According to the interviews, some T2DM women are able to get the right information from their providers which is the best for their health.

- T2DM women

One T2DM woman stated that she got information on family planning from nurses during the last few weeks before delivery and when she brought her child for vaccination follow-up. Detailed explanations were given on family planning so that she could discuss the matter with her husband before she made a decision on the choice of family planning method during the subsequent follow-up.

"Actually, during pregnancy, the nurse explained the family planning methods to me. They told me to discuss them with my husband and tell them the decision at my baby's first month follow-up. When I brought my child for the one-month immunization, a better explanation was given on the methods as I couldn't decide before. Maybe after this I'll decide either to use one or not" (T2DM woman 8, 33 years old, para 1)

- Healthcare providers

For some providers, the art of communication was really important in situations where T2DM women needed to make a decision. When they received a good explanation, the T2DM women were able to make decisions on family planning based on their preference.

> *"I think the healthcare workers have a big impact in influencing the women because some patients' husbands don't really mind about contraceptive usage. So it's a matter of deciding whether it's safe or not. So after an explanation, I think, after clarification, this can have a bit more of a positive impact on her contraceptive usage." (Medical Officers 8, 4 years of experience)*

Another provider stated:

> *"My role as a nurse is more important than the husband's. It's us who takes care of women with high risk, like making sure they have a safe pregnancy and uneventful delivery. So it's our job to convince them until they agree for family planning." (Nurse 1, 6 years of experience)*

One provider mentioned that there were also women who used family planning without their husband's knowledge. In such cases the preferred method was still supplied according to the women's wishes.

> *"Some women take pills monthly without their husband's knowledge. We don't really know what the problem between the husband and wife is but she gets her supply when she comes for her child's check-up." (Nurse 4, 8 years of experience)*

From the above, it is clear that the factors influencing family planning utilization differ among T2DM women. The findings of this study show that T2DM women are able to make decisions on family planning methods; however, the decision is also influenced by the

spouse, and healthcare providers. However, the choice of method depends on the T2DM woman's comfortability and preferences. The analysis of the interviews also highlighted that T2DM women have had some negative experiences with regards to their relationship with their healthcare provider. This study found evidence to support the idea that the opportunity should be given to T2DM women to voice their concerns about family planning and when these concerns are addressed this might increase the utilization of family planning methods among T2DM women. The poor relationship between providers and T2DM women may also be due to a lack of training on addressing the needs of these women. When it comes to providers, poor communication and insensitivity towards T2DM women's needs were the main findings that emerged from the interviews with providers. Some of the providers themselves also admitted that some among them are biased or make judgemental statements based on their clients' characteristics, for instance, their desire for a larger family or higher economic status.

Theme 2: Influence of external sources

The analysis of the data gathered for this study revealed that, for T2DM women, the main source of information on family planning was the people around them; mainly their friends and social media. Also most women took a passive stance by depending on their peers or information in the media without consulting healthcare providers.

a) Sub-theme: Mass media

Social media has made it easier for T2DM women to access health information. Social media is an important source of information for T2DM women as they can easily refer to it to address any issues they may be concerned about in relation to family planning and they then make their decision based on that information.

- T2DM women

Based on the interviews, social media played an important role in providing health-related information. Most T2DM women said that they got their facts from social media regardless of the source of information. However, untrusted sources were referred to the most. This may be because the official websites contain terms that are not understandable for the general public.

> *"I always get information from Google. I also watch videos…featuring people's experiences and blogs. Some of them are satisfied with the method they are using, some are not. I just don't want to try using it." (T2DM woman 5, 31 years old, para 2)*

- Spouses

Mass media played an important role in providing information about family planning to men as well. The participants claimed that they sought details on family planning from the media instead of asking healthcare providers. The reasons given included speed and easy access to the information they desired.

> *"It's all easy with internet nowadays. We can access to all information through clicking. It's less time consuming and easier." (Spouse 6, wife with T2DM 5 years)*

- Healthcare providers

Healthcare providers felt that, in this digital era, it was difficult to disseminate adequate information verbally. They believed that testimonies and blogs had a greater

influence on T2DM women than healthcare providers. Also, the providers were worried that T2DM women might believe unreliable information blindly without discussing it with them.

> *"Since most women are technology literate, they will just Google 'family planning'. In my experience, when we ask about contraception, they will reply 'I know about it through Google'. When asked what type they want to use, they say 'I will think about it'. Usually, they will believe internet sources more." (Nurse 3, 7 years of experience)*

b) Sub-theme: Family Members and friends

- T2DM women

The interview analysis revealed that T2DM women have discussions about family planning with their family members as well, especially with their mothers. One woman mentioned that she discussed family planning utilization with her mother and with the sisters she was close to whenever she had the opportunity.

> *"When I go back to my hometown, I discuss this (family planning) with my mother. She has scolded me many time –; why do I still need children when I already have five when I have diabetes? (laughs)." (T2DM woman 6, 39 years old, para 5+2)*

- Healthcare providers

A few providers mentioned that family members influenced the client's decision about family planning. One provider stated that usually mothers and siblings give some input on family planning methods before the woman makes a shared decision with her husband. The provider said that this happened mostly when the woman lived very close to or near her family.

Also, according to healthcare providers, besides social media, friends or peers had a great influence on T2DM women's utilization of family planning methods. They stated that, usually, T2DM women discussed the particular methods that their peers may have had experience of a particular family planning method, who made either negative or positive remarks about these family planning methods.

> *"Friends can influence them in making a decision on contraception. One of my patient claimed her friend got pregnant even though she had an IUCD. The reason may have been due to other factors but she still refused to listen." (Nurse 7, 12 years of experience)*

Many of the patients interviewed had often been exposed to the medical treatments, investigations and health stories of others. Besides spouses and family members, friends and the mass media also played an important role in influencing their utilization of family planning methods. T2DM women frequently sought information on family planning methods from those with direct experience of using family planning methods (friends, family, colleagues, peers) or from indirect sources such as the internet (bloggers, unreliable sources) due to its increasing availability. However, although clients got advice from friends and the mass media, it was still up to the client to make a decision on family planning methods. In short, the utilization of family planning methods depended on the support received from the spouse and others and on the availability of reliable information.

Theme 3: Communication between the healthcare providers and T2DM women

A good interpersonal relationship between providers and T2DM women has a huge impact on the provision of quality family planning services. If T2DM women feel welcomed,

are treated with respect and are encouraged to ask questions, they will have a better relationship with their providers and will be more likely to utilize family planning methods.

- T2DM women

Most women revealed that having a counselling session with their provider mainly depended on the patient load. On days when providers had fewer patients, there was time to counsel or address T2DM women's concerns. However, this rarely happened, and even when it did happen, T2DM women had usually already made up their minds to not use family planning methods.

> *"They [the healthcare providers] told me to plan. No other information was provided. Sometimes they don't even look at our faces during the consultation. It's still alright for me; I can [use] Google, but what about those who are not literate? Since I now know some extra additional information, I'll try to use it." (T2DM woman 2, 28 years old, para 3*)

Another woman stated:

> *"I don't really ask the nurse or doctor. If I do, sure they will nag, 'why aren't you using…', 'who is going to be responsible if you have poor spacing', something like that. Each time they talk, I just listen without asking any questions, but I won't commit to any methods. I do not want to use any." (T2DM woman 5, 31 years old, para 2)*

- Healthcare providers

During the observations, the communication between the providers and T2DM women was not flexible. Also, some of the interviewed healthcare providers felt that some providers act fiercely and force women to make a decision on family planning without

addressing the women's concerns and the involvement of their husbands. Due to this kind of relationship, women were unable to freely express their concerns about family planning.

> *"Patients should be given the freedom to talk. At times, we doctors don't give patients enough time or chances for them to express themselves. When you don't let them express themselves, there's a problem. 'What are their problems? Why doesn't their husband want to come to the clinic? Why after counselling is there still no family planning usage?' These kinds of questions must be addressed, give them a chance to talk, let the women express themselves. Also, getting the husband involved in the counselling session will be beneficial." (Medical Officer 3, 7 years of experience)*

On this basis, T2DM women's medical understanding of their health issues might be influenced by the providers. This study found that the communication between the provider and client had a huge impact on clients' family planning utilization. Clients with good communication and a good relationship with their provider during the consultation were prone to select the type of family planning they wanted. Conversely, when the clients did not have a good relationship with their healthcare provider, they preferred not use any family planning methods or had a fixed mindset based on the false information they had received. Patient satisfaction with consultations and healthcare services is paramount in ensuring that patients select family planning methods. Healthy communication between providers and clients is essential so that clients feel satisfied with family planning services.

Theme 4: Religion and cultural belief

This study also found that many of the participants expressed ambivalence when it came to religion and family planning utilization. Religion brought a different perspective to

the decision-making process, making people insecure about whether it was in fact was right or wrong to use family planning.

- T2DM women

The T2DM women in this study had different opinions about religion and family planning methods even though they were of the same ethnicity. Their understanding of family planning utilization in the context of their religion differed from person to person.

> *"Sometimes I have doubts about hormonal contraception from my religion's point of view. Is it ok or not? But I have not asked anyone about this matter for clarification. It's just me, I'm a bit doubtful." (T2DM woman 5, 31 years old, para 2)*

She also added:

> *"I didn't clarify the matter with anyone, whether it is allowed or not to use contraceptive methods. I'm not sure of the content of those methods and I'm scared about whether it is 'halal' or not." (T2DM woman 5, 31 years old, para 2)*

- Healthcare providers

Providers were frustrated with continually being faced with clients' perceptions, which included associating family planning with a false religious understanding. Healthcare providers felt that most of the time clients brought up religion as a concern during counselling, and that it made them feel ambivalent and insecure about contraceptive usage. Healthcare providers felt that the majority of Muslim clients felt that their religion did not allow the utilization of family planning.

"They say it's against religion. Having a child is God's thing, so why should we stop God? It's a blessing from God. We think we can change their mind but because we are not supposed to force the patient, we can only explain the good and the bad effects of not using contraception. I think the interpretation of what they understand is different. What does their faith say about this? That's why we face this kind of issue." (Medical Officer 8, 4 years of experience)

Some providers reported that T2DM women stated that God was the one who decided everything from conception to death and that consequently it was wrong to interfere in these processes by using birth control methods. The providers also stated that some clients had the impression that they were forbidden or that it is *haram* to avoid reproducing by using family planning methods.

One provider stated:

"I would say stigma is related closely to cultural belief. I think…because I see a lot of Muslim patients, they think that 'if we plan giving birth, plan pregnancy, it's like we really don't follow what God has planned for us…. It's a gift from God, a child is a gift from God. We are trying to work against God when we plan a family'. So they think we should follow the natural process of getting pregnant and then giving birth and so on. Sometimes we have quite a hard time explaining to a patient that this is not so, Islam doesn't really say that. We have to explain that this is not what Islam is about. The need to plan for other things. Some parts of the community think that contraception is against their religion. It's a bit challenging, probably because whenever they step into our consultation room they already have these fixed thoughts, fixed opinions about using contraception, and what we are trying to do." (Medical Officer 8, 4 years of experience)

Some healthcare providers mentioned that the utilization of family planning depended on the client's ethnicity. They stated that, in the case of Muslim women, the decision in regards to family planning had to be made by the husband. According to their experience in healthcare services, most of the women's spouses were usually against the utilization of family planning methods. One healthcare provider said:

> *"I would say especially for Malay society, when the wife is actually very keen to use contraception, and then the husband says no, then it won't happen…(laughs)…" (Medical Officer 5, 5 years of experience)*

The acceptance of family planning methods among the Chinese community was seen as more encouraging than that of the Malay and Indian communities. One nurse stated that, according to her experience, usually the Chinese women adopted simple methods such as condoms at first. However, after they had completed their family, they opted for permanent or longer-acting methods. Both the women and the men were willing to have permanent solutions such as a bilateral tubal ligation or a vasectomy for the betterment of the family. The providers felt that the Chinese community's acceptance of family planning utilization was much more encouraging. One provider stated:

> *"I sense that the Chinese community is more accepting and more open to contraception and even the spouse is more supportive of it. In fact, the husbands also come in and request a vasectomy as a contraception option. So far I have had two or three patients requesting a vasectomy." (Medical Officer 8, 4 years of experience)*

The findings of this study, as the interviews and observations indicated that Malay T2DM women were obliged to discuss the utilization of family planning methods with their

husbands. Any unclarified information on the family planning methods content was not discussed with any healthcare providers or religious personal. Chinese T2DM women were willing use long term family planning methods with the spouses support.

4.5.1.3 Organizational-level factors by theme

Research question three was focused on the factors influencing the quality of family planning services in primary healthcare facilities. The findings for this level of the SEM were based on the healthcare providers' perspective. Providers criticized the service for its shortage of resources shortage, the working attitude of the personnel and their communication skills.

Theme 1: Insufficient resources

a) **Sub-theme: Limited supplies**

According to the interview results, insufficient supplies and limited options at health centres also impacted the quality of services T2DM women received. When asked about the availability of their family planning services, over half of the providers said that the methods that were readily available were condoms and pills, whereas it was difficult to get supplies of injections and IUDs. However, having sufficient supplies and types of family planning available would build confidence in the service and ensure that T2DM women would always return to the clinic.

> *"We always have a supply problem (a bit hesitant to speak). Like today we are only left with pills; no injections or IUCDs. Most of the T2DM women here use injections but when there is no stock, we ask them to get it outside. If they can afford it, that's good, but what about those who can't afford it? Its expensive outside and most women in this area are housewives. If we have 100 patients*

coming here for an injection in a month, we only get about 30. It's not enough. Sometimes it's embarrassing telling patients that we don't have enough stock." (Nurse, 7, 12 years of experience)

The providers felt that it would be good if there were a choice of family planning method. Due to many factors, including illness and eligibility criteria, the providers stated that it was quite difficult for the providers to switch methods to suit the needs of T2DM women.

"The family planning options are very limited at this clinic. For example, patients have various reasons for not using a specific family planning method. If they cannot tolerate the side effects from the pills, or have heavy bleeding after IUCD [insertion], there are no options left for them.. So they cannot decide on what type of contraceptive [they should use]. We are quite limited in the number of family planning methods we have. So it's quite difficult for us to change the method for patients." (Medical Officer 8, 4 years of experience)

According to the healthcare providers, some T2DM women asked for longer-term methods. However, due to the long procedure (referral to other facilities) and limited options in primary healthcare facilities, the T2DM women were either reluctant to go hospital or to use any of the family planning methods.

"Many patients come and ask us for Implanon because they want longer-term contraception. But they refuse [to have an] IUCD because they don't want any procedure or are scared of [getting an] infection. For patients who want Implanon, we just ask them to get it done at LPPKN. If we had Implanon, I think it would be good for the patients. Since it's a bit pricey I heard that in few months

to come we might have just two or three samples, but I'm not very sure about that, but so far our doctors haven't had training to insert Implanon." (Medical Officer 7, 5 years of experience)

b) Sub-theme: Patient load

In the morning session, medical officers typically have consultations with around 40 patients and nurses have consultations with about 30 patients. The time spent with each patient varies according to the risk the T2DM woman carries. In the context of minimal counselling, and the long waits at health centres, many T2DM women discontinued their family planning methods, rather than returning to the health centre for additional consultations.

"Frankly speaking, we have a lot of patients every day. Sometimes we don't have the time to give proper counselling on family planning, we concentrate more on T2DM. We miss the high-risk cases. Nurses also fail to identify them and then patients just go back without contraception and counselling. I do understand that my nurses have a lot of cases so they have to see patients in a hurry." (Medical Officer 1, 6 years of experience)

The providers mentioned that time constraints did not permit them to counsel patients on family planning. They stated providers were concerned about the length of waiting time (one of the performance indicators in primary healthcare facilities) and tended to bypass questions on family planning. According to some providers, it was difficult to have effective and concise family planning counselling in the current primary healthcare setting because of the time needed and the number of patients.

"Personally, we can only spend about five minutes on each patient. So it's quite difficult to talk about contraception in the middle of you juggling all the patients… (Laughs)….quite tough." (Medical Officer 11, 3 years of experience)

Another provider stated:

"In the morning session alone we see about 40 diabetes cases. I will admit that when we see 40 cases of diabetes in four hours, you tend to focus more on the diabetes. Only two MOs [medical officers] see diabetes patients… I think because of this, I mean it's not an excuse, but most of us don't have time to go into in-depth counselling with the patient on family planning. We mainly focus on diet, medications and other lifestyle modifications other than family planning. Our patient load is quite high in this health facility. It's one of the highest in the whole PKD Gombak [Gombak health district]. So I don't think we can cope with the size burden, which is approximately 40 patients in the morning session." (Medical Officer 6, 2 years of experience)

Another provider mentioned that, during follow-up, when asked about family planning, T2DM women usually refused to get involved in a discussion. Usually, they would listen to matters related to the disease but not those about family planning methods. The long waiting time was felt to be one of the contributing factors to the women's lack of interaction.

"When mothers bring their children for follow-up, we do ask about family planning. However, the patient will be hesitant about listening to us, with reasons such as their husband is waiting or the procedures will take a longer time. So we give them another appointment to discuss contraception." (Nurse 5, 10 years of experience)

Some providers commented that there were still insufficient numbers of medical officers and nurses in primary healthcare centres. Even though the number of providers may be filled according to the placement quota, a shortage might still be present for various reasons such as the frequent turnover of providers, attendance at meetings that are conducted during the consultation hours and staff absences due to courses, maternity leave or the need to fill in for others in another facility.

c) Sub-theme: Improper facility infrastructure

From the observations made prior to conducting the interviews, it was apparent to the researcher that the consultation rooms within the facilities studied did not allow for proper consultations with T2DM women on the issue of family planning, which is perceived as a sensitive issue. Generally, the consultation rooms accommodate two medical officers attending to two patients, who can be either male or female. Also, the spouse is not be allowed inside the consultation room due to the lack of space and the need to maintain the privacy of the other patient. Providers felt that the current setting does not allow consultations about family planning as both the man and woman should be present and privacy is needed.

> *"I think our system doesn't allow husbands into our consultation rooms. Our rooms are small. I strongly believe that the counselling session on family planning should be in another separate room." (Medical Officer 3, 7 years of experience)*

Supply shortages and inconvenient facilities cause clients to become dissatisfied and discontinue the primary healthcare services. The providers mentioned issues with the clinic flow and that the time and effort that needed to be dedicated to each patient to cover all their health aspects was almost impossible to achieve. They also stated that the increasing patient

load was leading to less-focused discussions. The high patient load has resulted in a shortening of consultation time and providers are unable to address clients' concerns in a satisfactory manner. During the observations, most patients preferred to have a brief discussion by answering the provider's questions rather than discussing their health issues further. This could be due to the long waiting times. This could contribute focus of health was tailored to individual disease and addressing current complains experienced by T2DM women, instead of discussion on family planning. The providers also highlighted that confidentiality and privacy was needed when approaching couples about utilizing family planning services. Considering these findings together, it is worth noting that the issue of resources is linked to the level of family planning utilization as well as to the availability of time. This may indicate that the upgrading of resources could stimulate providers to pay attention to the family planning aspect instead of offering it on an occasional basis.

Theme 2: Continuum of care

a) Sub-theme: Integration within the system

The providers in this study admitted that they refer T2DM women to maternal child health (MCH) if the women needed family planning advice instead of counselling them themselves. From the interviews, providers in the OPD overlooked the reproductive aspect of their patients' health and focused only on their medical illnesses.

> *"I think all nurses should know about family planning regardless of where they are stationed. They should know about the basic of family planning. I don't see a reason why it is difficult to know [these things]. It's too basic here in this facility." (Nurse 6, 8 years of experience)*

On the other hand, one provider stated that they did not receive any referrals from the OPD requesting appointments for family planning for their clients.

> *"There is a nurse stationed and in charge of the NCD [non-communicable diseases] clinic. She sees a lot of T2DM women of reproductive age. Strangely, I don't get any referrals sending T2DM women to us for family planning counselling. They only send them to the MCH unit after they become pregnant." (Nurse 5, 10 years of experience)*

b) Sub-theme: Selected for courses

Providers also expressed opinions on the selection of personnel to attend courses or training. Currently, only providers in the MCH unit are sent on courses related to family planning. This has caused an assumption that all cases related to women's reproductive health should be referred to the MCH unit.

> *"When clients come to the OPD and ask about family planning or a pap smear, we don't know how to answer them. We have to call our MCH colleague and ask them. Sometimes we ask the patients to go over and see a particular doctor. I know this causes unnecessary hassle." (Medical Officer 10, 4 years of experience)*

The above extracts point to broader issues of health service provision within the primary healthcare setting. Providers are confined to their stations and it seems that the focus of the providers does not move beyond the area in which they work. As mentioned earlier, primary healthcare facilities are divided into two sections, the OPD and the MCH unit. The findings of this study revealed that providers working in the OPD were unable to provide adequate information on family planning and instead clients were referred to colleagues in

the MCH unit. When this occurs, T2DM women need to go through the same procedure to meet the provider in the MCH unit that they have already gone through to attend the OPD, for example, obtaining a registration number and waiting to be called, and this leads to longer waiting times and an unsatisfactory situation. Thus there is a need for all providers, not just those in the MCH unit, to be able to talk about family planning without limitation. Due to the specific selection of personnel for family planning courses, other providers are unable to expand their knowledge and this consequently leads to staff disagreements about who should counsel clients on family planning as well as the delivery of false information. These findings do not fit well with the principle of approaching patients' health holistically rather than focusing on a particular illness. Consequently, there is a lack of recognition of other health aspects. Yet, these aspects of health are of great importance for T2DM women and thus should be taken into consideration.

Theme 3: Accessibility

In the context of this study, the term 'accessibility' refers to both the affordability and the availability of family planning methods and services within the given local healthcare facilities. The demand for care among the population in need in each district is high and the area covered is large. Hence, access to healthcare centres may not be feasible for many users. In addition, it may also result in extra expenditure when seeking care in general.

a) Sub-theme: Dependence

- T2DM women

Some of the T2DM women depended on their husbands for visits to clinics. This added to their burden as it could disturb their husband's routine work.

"My husband is a lorry driver and he usually goes outstation. And my house is so far away from here. I either have to ask for my neighbour's help or take a taxi to come here for my check-ups. We can't rely on buses as we have to wait for at least two hours." (T2DM woman 6, 39 years old, para 5+2)

- Spouses

The spouses also mentioned that travelling to the facility acted as a hindrance to seeking treatment, especially if the journey required the spouse's support. One spouse mentioned that, for various reasons, too many appointments were made for his wife to attend and it was not feasible to take too many days off work to take his partner to all her appointments.

"I don't understand the system here. They give appointments for different things, for instance, an eye check-up, blood taking, seeing the doctor or nurse and then a separate day to meet the specialist. I have to bring my wife each time and it's just too difficult. Most of the time I'll ask her to skip the appointments except if her medicines are finished. I have to work, it's not cheap anymore (frustrated)" (Spouse 7, wife with T2DM 8 years)

Also, when the provider is not available and the appointment is rescheduled to another date, an unsatisfactory situation arises and leads to more defaulters.

- Healthcare providers

Lack of transport, the opportunity cost of lost work and long waiting times upon arrival at a health centre often makes going to a health centre prohibitive for working women.

"They don't have proper transport to get to the clinic. If they are working, they have to take the bus [to get here]. If they have to take two buses to get to the clinic, they say 'I'd rather not use family planning because of the hassle'." (Medical Officer 9, 6 years of experience)

b) Sub-theme: Loss of income

These days, working women are increasing in number. The healthcare providers felt that there were still many women who could not seek healthcare services due to the nature of their job. Due to workplace constraints, working women would rather not come to healthcare centres and seek other alternatives.

"Sometimes employers don't accept our time slips when women attend our clinics. Especially [private] companies, they don't accept our time slips. So if we ask them to come and give them time slips, when the company doesn't accept it, their salary gets deducted. At the end of the month, they don't have an adequate salary, hence they refuse to come to the clinic." (Medical Officer 7, 5 years of experience)

The T2DM women also raised concerns with their providers regarding the financial constraints of seeking family planning services. One provider stated:

"My salary is important to me' is T2DM women's common statement. Because they are not earning much, they can't afford a lot of medical certificates as well. Some patients are earning RM1500 to RM2000 [per month] and if you are going to [get your salary] deducted once every month once or once every two months, then it actually means a lot of lost [income] to these patients. They won't come

and risk [that] just for an appointment to get pills or an injection." (Medical Officer 7, 5 years of experience)

c) Sub-theme: Affordability

- T2DM women

The increasing cost of living does not allow T2DM women to pay for long-term family planning methods. One woman mentioned:

"Even though I think the implant is the best choice for me, it's a bit difficult to fork out the huge sum of money [for it] in one go. We have other more important expenses we need to think about." (T2DM woman 7, 24 years old, para 2)

The T2DM women mentioned that the cost of getting family planning methods outside government facilities was expensive, except for condoms. Hence, some of them said that they got their supplies at primary healthcare centres as and when needed. One woman stated:

"I don't expect superb treatment from these clinics. In fact, you shouldn't expect that from any government facilities. But I've got no problem with that. As long as it's free." (T2DM woman, 38 years old, gravida 4, para 2+1)

- Healthcare providers

Some healthcare workers were worried about the cost of the modern family planning methods available in other institutions such as private clinics as well as LPPKN. According to them, generally not all T2DM women were financially well off, hence it was difficult to counsel them about using long-term methods such as Implanon.

"If we suggest Implanon, it's too expensive and we don't offer it in government clinics, only hospitals. They have to get it outside and the cost is about RM 600. So we don't really advice patients to get Implanon." (Medical Officer 7, 5 years of experience)

When family planning supplies were limited, T2DM women were advised to get methods such as pills from a pharmacy or private clinic. However, the possibility of non-compliance is much higher in that situation.

"There are two types of OCP here, sometimes we have no choice, when one runs out of [a particular] supply, we have to give out the other one. T2DM women are interested in Implanon but we don't have Implanon here so we have to refer them to LPPKN where it cost RM 500. So for long-term methods we always have a problem and we don't have the funds here." (Medical Officer 4, 3 years of experience)

From the interviews, it appears that access to family planning services is a factor influencing family planning utilization. For instance, T2DM women need depend on their spouses to get to facilities offering family planning services. In addition, long waiting hours and appointment-based services are inconvenient for T2DM women, so they forego utilizing family planning methods. This situation not only affects the spouse's work routine, it has an impact on income, and it may hinder a T2DM woman from obtaining family planning services. The T2DM women in this study felt that long-term family planning methods were an unnecessary expenditure. Also the escalating medical expenses are a burden for many T2DM women. For instance, a T2DM woman who wishes to utilize a long-term family planning method, for example Implanon, a method which is not available for free, may not

be able to afford it. Hence due to the cost, providers are reluctant to advise patients to use that method.

4.5.2 Suggestions for improving family planning utilization from the providers perspective

The interviews with healthcare providers also elicited suggestions for improving family planning utilization and services among T2DM women in primary healthcare facilities. This section explores the suggestions made by the healthcare providers, which are organized according to the SEM.

4.5.2.1. Individual-level suggestions in the SEM

Theme: Training and continuous medical education

As mentioned earlier by the participants, it is crucial to have knowledge about family planning in order to improve its practice and services. The interviews and observations revealed that there is a need to improve the knowledge of both clients and providers about family planning and its importance. The providers suggested that training and courses would be a way to increase knowledge and communication skills among healthcare providers.

> *"For me, I would say we should ensure that everyone who is related to patient care should be really trained in proper contraception counselling. Because once they are trained, they will know what the problems are and the issues they should discuss with the patient. So in a way they can save time with counselling, by not repeating the same thing again during each consultation. Maybe the nurses can give a bit of an introduction on family planning, while the doctor can explain it in detail and answer more questions." (Medical Officer 8, 4 years of experience)*

They also mentioned that the training received should be disseminated to other colleagues and staff in order to be beneficial and that it could be a part of their ongoing learning.

> *"Everybody should have training that is equal to that received by their colleagues at the hospital level, especially those who are actually in contact with women of reproductive age. We should do echo training when we come back to the clinic especially among the doctors and also at the nursing staff level." (Medical Officer 5, 5 years of experience)*

Also, healthcare providers felt that receiving training from an experienced agency would be good for their skills.

> *"I think LPPKN is a good training centre, not only for IUCDs, most contraception procedures are done there including Implanon. We have already proposed going to LPPKN and the management are considering it." (Medical Officer 5, 5 years of experience)*

Medical officers suggested that continuous education and assessment would help providers to improve their knowledge regardless of where they were stationed at work.

> *"Most of the courses involve one-way communication. There is no proper assessment. You really don't know how much they have actually they gained from the course that they attended. Because, I'm sorry to say, when we ask some of the staff, surprisingly they don't really understand what family planning actually is." (Medical Officer 5, 5 years of experience)*

Providers felt that continuous training and education would improve their knowledge. They suggested that training needed to be provided to train the providers in soft skills so they had better counselling skills and to train them in certain techniques in order to perform family

planning procedures. They also thought that being trained by specialized personnel would be more reliable than learning from colleagues.

Based on these suggestions, basic training in family planning should be administered and prioritized for all providers regardless of the station they work in, with additional refresher trainings for all those already trained in family planning. For providers, receiving training on techniques, for example the insertion of IUDs, or on counselling would be beneficial. However, these skills would still need to be assessed from time to time. Continuous medical education is another strategy that could be used to enhance the knowledge of providers. The findings from this study revealed that only the providers in MCH units had the opportunity to attend family planning training and courses. However, continuous medical education for all support staff, for example nurses, and providers in the OPD should be conducted to reduce inter-referrals and the burden placed on clients.

4.5.2.2 Interpersonal-level suggestions in the SEM

Theme: Social media as a medium of information

Healthcare providers believed that social media could influence the general population to increase their usage of family planning methods. They thought that social media could convey the correct information to the public as the public tended to believe the media more than healthcare providers.

> *"On the internet, things can spread within seconds, especially rumours, hence it needs to be tackled properly. What we have now on Facebook is good enough. I would suggest that if KKM [Kementerian Kesihatan Malaysia] can come up with a proper social media programme to tackle this kind of sensitive issue that would be good enough. I think in this era, we should go for that approach because*

nowadays everything is at the tips of their fingers. I mean pamphlets are still ok but how many people will actually read pamphlets." (Medical Officer 5, 5 years of experience)

Another provider stated:

"Most of my patients come back saying 'saya check dalam internet or saya tengok kat internet' (I've looked up in the internet).. So that's where they get the information from. I don't see how it's really effective doing more pamphlets. I think if KKM wants to make changes, they should do it through social media, probably talk shows on television, and like how they advertise coke and MC D [McDonalds] and KFC….if they can do that I think the awareness can be increased (giggles)." (Medical Officer 7, 5 years of experience)

Social media is a good platform for disseminating health information. The providers felt that the Ministry of Health of Malaysia should make some efforts to strategize the dissemination of information on family planning via social media, for example, through advertisements during prime time or via radio. They also cautioned that clients are seeking information from electronic sources, so reliable resources should be made available for them to read.

4.5.2.3 Organizational-level suggestions in the SEM

Theme 1: Improving the current service system

The medical officers suggested that the current healthcare system needed to be improved. For instance, the identification of defaulting patients and the referral system needed to be smoother to ensure that all registered patients got long-term care without any

breaks in between. With such improvements the continuum of care for all clients would be guaranteed.

> *"When some patients default, we have to do defaulter tracing. I think if they default their MGTT [Modified glucose tolerance test) for six weeks and they are diabetic without knowing it, then we are in trouble. And then there is the referral system, I mean from the MCH unit to the OPD to make sure these women have a proper follow-up in the OPD." (Medical Officer 6, 2 years of experience)*

Another provider stated:

> *"Another thing is to enforce family planning not only in the MCH unit; it should be done in the OPD and NCD. Everybody should know about family planning. They should be encouraged to use all these educational tools like pamphlets." (Medical Officer 4, 3 years of experience)*

In the current system there are specific days for appointments for patients to attend consultations and receive family planning methods. However, attending on these days may not be feasible for most women due to their daily routine.

> *"I think we shouldn't have only certain fixed days for getting contraception; it should be available daily. So that women can get their methods easily." (Nurse 2, 7 years of experience)*

Another provider suggested that some facilities should have specifically tasked personnel to counsel high-risk women on their disease as well as on family planning. It was felt that this strategy would be more effective than trying to cover everything in a standard counselling session.

"I think a separate nurse for counselling is needed especially for high-risk women. Just specifically for that. She would have enough time to counsel properly without other duties causing any disturbance. Because for now, we have to see high-risk antenatal care patients, children and many more. Family planning is given least importance." (Nurse 6, 8 years of experience)

An additional point to note is that both the OPD and MCH unit in primary healthcare facilities need to be improved. This segregation in the system has resulted in the poor management of the patient and a less holistic approach. It has also led to a greater work burden for some staff members. Hence, counselling on family planning may not be focused or effective.

Theme 2: Educational tools

Besides mentioning social media, the providers also suggested that educational tools such as pamphlets and posters would be useful instruments to use so that clients would at least get the basic information.

"We must have a good posters on family planning on notice boards, it would be more useful before the patients come into the 'bilik rawatan' [treatment room]. At the moment, I think there is none on family planning." (Medical Officer 5, 5 years of experience)

The same medical officer also stated that proper guidelines should be established to standardize the care given by providers, and that they should not solely depend on seniors for learning new methods.

"Well, you need to have proper guidelines first before you to teach someone the right method because sometimes when you learn from someone else, you don't

know if they are actually telling the truth or the procedure is the appropriate way of doing. So, I think the guidelines should be there." (Medical Officer 5, 5 years of experience)

Simple educational tools were perceived as useful for clients as providers felt that using simple pamphlets to introduce family planning methods would be beneficial to reduce clients' concerns and anxiety. The providers also mentioned that guidelines should made be available for the providers' reference.

Theme 3: Sex education

The providers suggested that sex education should be enhanced in the existing school or university curriculum in order to increase awareness.

"I think, in Malaysia, many people have the wrong facts on family planning, so educating them is essential, probably at school age. From the early years in their life, they already know about contraception. That education would be an eye-opener to them so that they don't have any wrong information later." (Medical Officer 7, 5 years of experience)

The providers expressed the opinion that the current primary healthcare system needed to have better intervention mechanisms in place and better integration between the OPD and MCH unit in order to strengthen and improve the continuum of care. They felt that establishing a proper referral system was vital to trace all high-risk women and provide them with better care. They also mentioned that family planning services should be readily available on all days for easy access. In addition, they argued that specific trained personnel should be allocated to family planning services for several reasons; other tasks would not interfere with their work, longer counselling time would be available and clients' concerns

could be addressed. The providers believed that sex education was important for providing young women with basic information about contraception and family planning. This was thought to be important as the prevalence of diabetes is increasing in the younger age group. With proper content, sex education in schools and universities was seen by the providers as a stepping stone towards a better reproductive health status. Incorporating sex education into the school curriculum to enable women to have early awareness was seen as a strategy for promoting family planning.

4.5.2.4 Community-level suggestions in the SEM

Theme 1: Support groups

A support group for high-risk groups such as T2DM women was also perceived to be important according to some providers as they believed that such groups may help to address concerns about family planning, as exemplified by the following statement.

> *"If they had a support group that would be good but we don't have one in this clinic. Probably for young T2DM patients…having a support group where they can discuss and talk to each other about their problems, that would be good, but so far we don't have one here." (Medical Officer 7, 5 years of experience)*

Establishing support groups at each health facility would be a way of engaging the community especially T2DM women in utilizing family planning methods. These support groups could lead to healthy discussion and would have the added advantage of enabling patients to talk to people who have had similar experiences.

Theme 2: Cooperation from employers

A minority of providers felt that there were some issues could be addressed by management taking more vigorous action. The providers felt that there was a need for a higher authority to recognize the official documents issued by health clinics and legalize them.

> *"I think the issue of companies not accepting time slips, only KKM can address that. Maybe a letter to inform the companies that time slips are something legal instead of issuing a medical certificate or taking annual leave just for a few hours' visit to the clinic." (Medical Officer 7, 5 years of experience)*

One of the biggest hindrances for employed T2DM women when seeking family planning services is employment restrictions. These restrictions include either pay cuts, or unacceptable time slips or both. Hence, providers felt that a higher authority must take action to remind employers of the importance of family planning and the legality of government documents such as time slips. This would reduce absenteeism among employees (for those who needed a medical certificate) and create more productive employees.

4.6 Validity of the Study

Trustworthiness or truth value of qualitative research and transparency of the conduct of the study are crucial to the usefulness and integrity of the findings (Whiting et al., 2011). To check the credibility of the results, the interim steps of the analysis process were shared and discussed amongst the supervisors. Additional discussions leads to modifications of the results, especially when transparency was needed. In addition, transferability was checked by referring to the literature that targeted T2DM women, or the healthcare providers living in other countries. Also, confirmability was checked to contrast the summarised findings with

the transcripts multiple times to confirm with the similarities in the findings of the collected data. The outcome of the analysis using triangulation revealed many similarities in the issues concerning family planning utilization in Malaysia. Interviewing the spouses and healthcare providers in addition to the T2DM women gave insights into other perspectives and opinions on family planning utilization. Many findings or topics of concern expressed by the T2DM women overlapped with each other. The overlap in the findings reaffirmed that the results of this study are evidently shared among T2DM women of reproductive age.

4.7 Summary

The findings above were presented according to the research objectives and to the SEM. The findings above suggest that the underutilization of family planning methods and services in primary healthcare facilities is due to interrelated factors in the SEM. For instance, the analysis revealed that T2DM women were aware of their health status and complications due to morbid disease, but they resisted from using family planning methods for many reasons. The findings suggests similarities in factors influencing family planning utilization among the participants. At the individual level of the SEM, the most dominant themes were the side effects and the factors associated with providers' knowledge and skills. At the interpersonal level, decision-making and influence from external sources, influences family planning utilization. Both medical officers and nurses revealed insufficient resources and the lack of a continuum of care influence family planning services at the organizational level. These factors lead to poor delivery of family planning methods and services. Figure 4.3 illustrates the themes related to the factors influencing family planning utilization and services that emerged from the interviews with all three groups of participants.

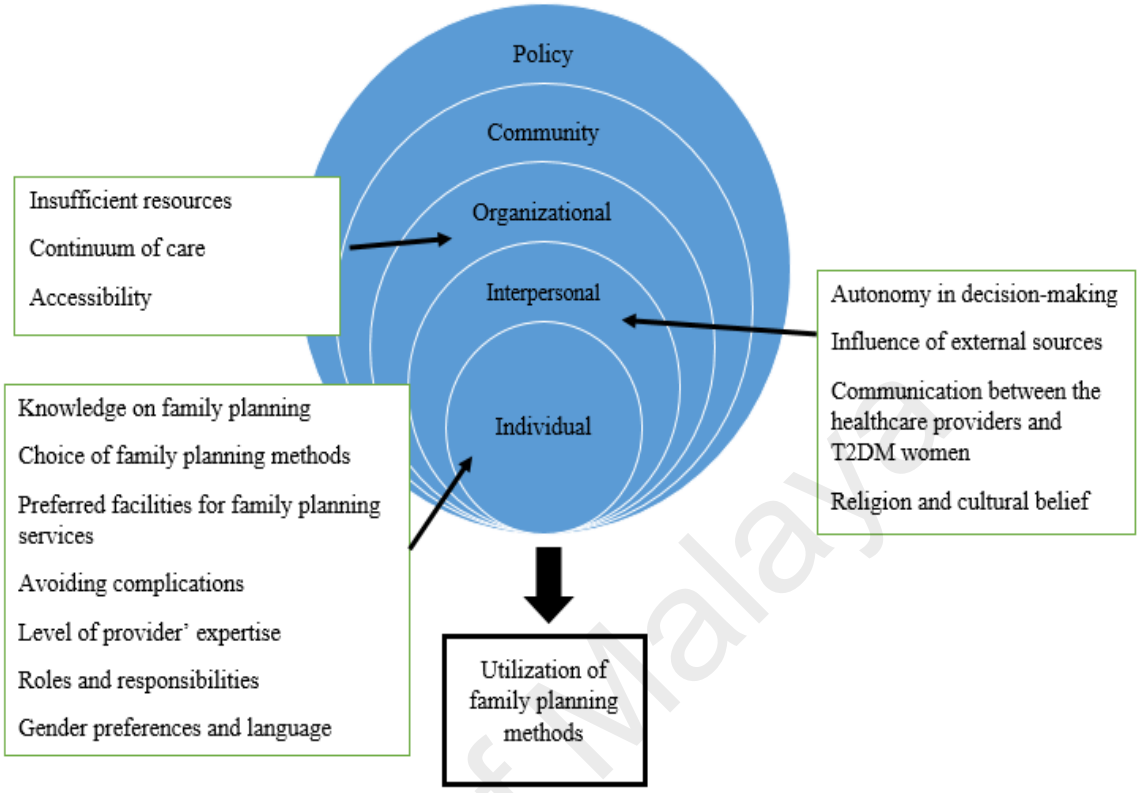


Figure 4.3: Themes on factors influencing family planning utilization among T2DM women

This study also explored suggestions to improve family planning services from the perspective of healthcare providers in primary healthcare facilities. Healthcare providers, both medical officers and nurses, expressed almost similar opinions and experiences regarding family planning services. Their suggestions were highly related to the problems they face at primary healthcare clinics in regards to high-risk women such as those with T2DM. The main themes that emerged from their suggestions are illustrated in Figure 4.4.

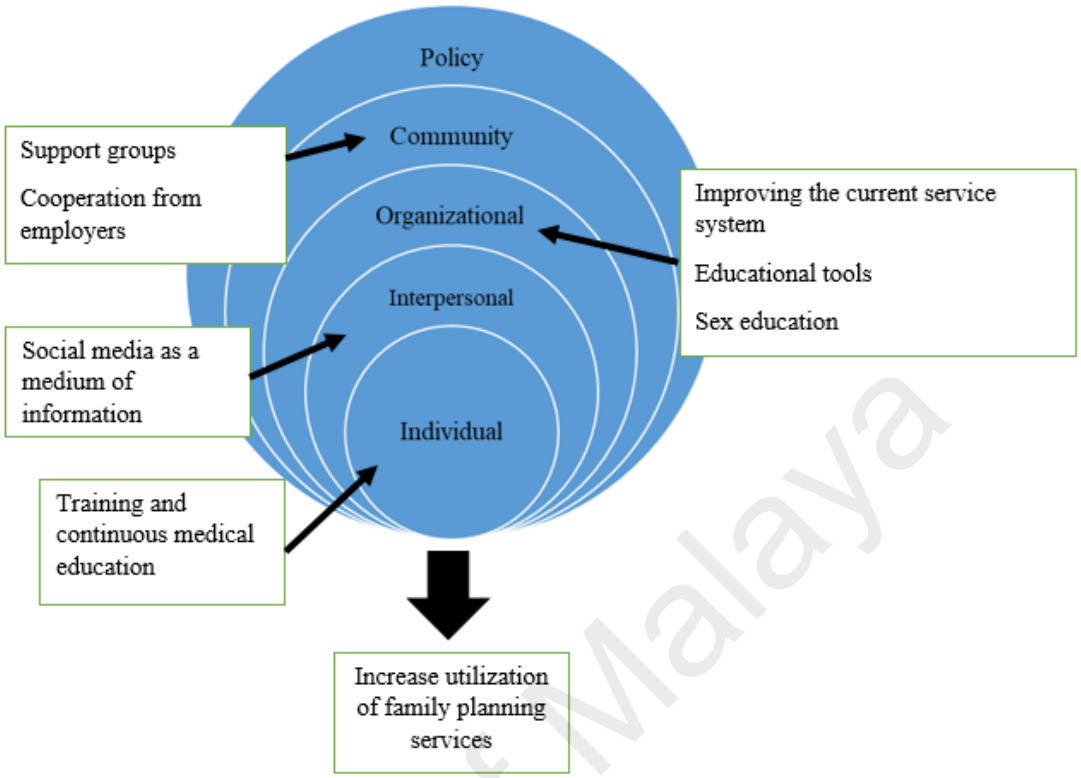


Figure 4.4: Themes for improving family planning services based on healthcare providers' suggestions

CHAPTER 5: DISCUSSION

5.1 Introduction

This chapter synthesizes the findings reported in the previous chapters in order to address the research questions underpinning the research project. This study sought to look at the factors affecting the utilization of family planning methods and services among T2DM women in primary healthcare facilities. Qualitative methods were used to develop a comprehensive understanding of the issue from the perspective of T2DM women, their spouses and healthcare providers. Eight non-participant observations were made and a total of 38 participants were interviewed individually, comprising 11 T2DM women of reproductive age, seven spouses and 20 healthcare providers purposively selected from a total of 7 primary healthcare centres in Gombak District, Selangor, Malaysia. The interview responses were explored by using a thematic analysis method and explained accordingly. The findings revealed several themes that described the factors affecting the utilization of family planning methods and services that were categorized into levels by using the social ecological model (SEM).

This chapter begins with a discussion of the important key findings regarding the factors influencing family planning utilization among T2DM women in primary healthcare facilities in Gombak District. Then, it presents the suggestions to improve family planning services among T2DM women that were suggested by the providers at the primary healthcare clinics, which are also organized into levels based on the SEM. This is followed by a discussion of the strengths and limitations of the study, and lastly a summary of the chapter.

5.2 Relation of SEM to the Findings of the Study

In this study, the SEM was selected to understand the complexity and interaction of factors influencing family planning utilization among T2DM women. This theory was selected because the researcher considered that it was the best model to apply in explaining the findings of this study, as discussed in chapter two (Bronfenbrenner, 1979) In one way or another, it is the individuals (spouses and healthcare providers) who have the greatest influence on family planning utilization. This study found that women with T2DM have their own perceived ideas about family planning methods that are based on either their own experience or that of their friends. They tend to rely on the information that they get from their friends, which may not be correct, and are therefore not encouraged to utilize any family planning methods. Spouses, family members, friends and social media also exert an influence on T2DM women's choice to utilize or not utilize family planning. The study findings revealed that spouses encourage or allow their wives to utilize family planning but that ultimately the choice also depends on the T2DM women's own level of comfortability.

This study also found that the primary healthcare system has an influence on family planning utilization and services. The providers' own level of knowledge in family planning, as well as its availability, accessibility and affordability were identified as the other factors influencing family planning utilization among T2DM women. Thus, both healthcare providers and the decision-makers in the primary healthcare system may need to be aware that T2DM women's behaviour and decisions on family planning are based on these factors as well.

Overall, the SEM was a good fit as it enabled the researcher to clearly determine the factors affecting family planning utilization at primary healthcare facilities. Each level, from the individual level to the organizational, has its own significance and the factors at all levels

should be taken into consideration because they may influence a person's behaviour in regards to their decision-making about family planning. The major advantage of using SEM in this study was that it made it possible to identify strategies for behavioural and related interventional change. It is important for policymakers to look in depth at each factor at each level in order to ensure the effective implementation of a family planning programme.

5.3 Factors Influencing Family Planning Utilization among Type 2 Diabetes Mellitus Women

This study revealed that three levels of the SEM influence family planning utilization among T2DM women; the individual, the interpersonal and the organizational level. Fourteen themes emerged to explain the factors influencing family planning utilization and services, as illustrated in Figure 5.1.

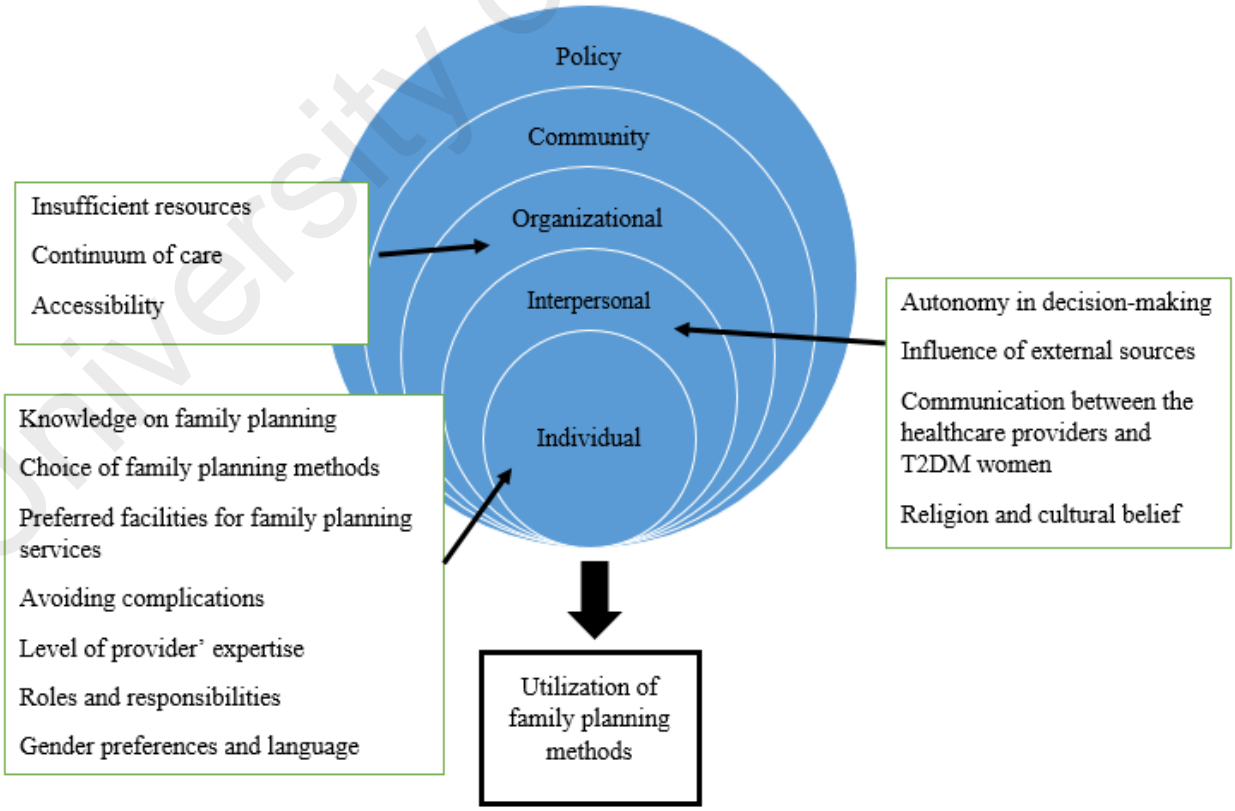


Figure 5.1: Factors influencing family planning utilization among T2DM women

5.3.1 Individual-level factors of SEM affecting family planning utilization

This study indicated that even though T2DM women know and understand the dire consequences of having an unplanned pregnancy without following their healthcare provider's advice, their desire to utilize family planning is not strong. The study found that T2DM women and their spouses possess a high level of awareness about the need for family planning. However, there are discrepancies between what the T2DM women know and what they actually do. Their understanding of family planning influences their perception and behaviour towards utilizing family planning methods. This is also known habitus, which in simple terms is a concept that refers to how people conceptualize ideas and how, in addition to external factors, these ideas are able to influence their actions (Swartz, 2002). This study found that most of the T2DM women were able to discuss maternal- and child-related complications during pregnancy that are related to the disease of diabetes and the types of family planning methods available, as well as the benefits of planning and utilization family planning methods. Despite the perceived need and positive attitude towards family planning, the number of T2DM women seeking family planning was found to be low. This finding was consistent with evidence, in Kenya, even though with sufficient awareness and knowledge, utilization of family planning was low among the women (Ochako et al., 2015). The findings of this study revealed that most spouses are also aware of the need for family planning and its importance for their wives. The spouses exhibited some positive attitudes regarding their wife's utilization of family planning methods due to financial reasons. This is in contrast to a previous study which reported that spouses have a limited interest in as well as knowledge about utilizing family planning methods (Capurchande et al., 2017).

The healthcare providers who were interviewed for this study believe that T2DM women with an adequate knowledge have a positive perception about utilizing family

planning methods, and that effective usage of family planning methods can have a significant positive impact on T2DM women's quality of life. This perception seems contrast with the some studies that reported that a high level of knowledge is not commensurate with a high utilization of family planning (Nansseu, Nchinda, Katte, Nchagnouot, & Nguetsa, 2015; Tilahun et al., 2013). The utilization of family planning methods by T2DM women depends on the methods that are available in primary healthcare facilities. However, T2DM women were not keen to utilize family planning methods offered at the primary health care facilities. Therefore, the desire to delay pregnancy is generally achieved by using a simple barrier method such as a condom or by using a traditional method. It was noted in the present study that T2DM women consider traditional methods to be more effective than modern methods. The present study also found that T2DM women's decision to utilize a traditional method was based on their priorities, e.g., due to their desire to avoid side effects, and procedures and accessibility to long-term methods. This finding is consistent with another study, the use of traditional methods mainly attributed the fear of side effects and easy availability (Kabagenyi et al., 2016).

This study found that T2DM women are aware, that in addition to primary healthcare centres, there are other types of facility from which they can obtain family planning services. The T2DM women interviewed for this study stressed that they still preferred to use primary healthcare facilities rather than private facilities for their family planning supplies even though they felt that there was room for improvement in the services offered by primary healthcare facilities. This finding is contrast to that reported in a local study, which revealed that most women prefer to go to private facilities for their family planning resources (Azmat et al., 2012).

Essentially, from the interviews, it can be said that the patients' perceptions and experiences of side effects differ. This is not surprising as the patients came from different backgrounds and cultures. What one person may consider minimal side effects, another may not because the perceptions they carry are different. The perception of side effects is based on each individual's unique life experiences and the significance they place on the information they receive. The T2DM women in this study identified 'femininity' with the presence of menses, is seemed new information from this study. The presence of menses is important and significant to be defined as a women. A woman's intention to use family planning methods also depends heavily on the side effects they themselves experience, regardless of whether the method is hormonal or non-hormonal.

Also, as regards the side effects in relation to physical appearance, generally, T2DM women make efforts to try to reduce their weight in order to manage their disease. However, utilizing family planning methods adds to their weight gain concerns and consequently leads to avoidance of these methods. Similarly, T2DM women are worried about the appearance of acne on their face. This physical change lowers their self-esteem further. As the result of this, they either discontinue their family planning method, or refuse to switch method or talk to their providers. One study in found that majority of young woman's main fear were weight gain and menstrual changes leads to underutilization of modern family planning methods (Kabagenyi et al., 2016; Tolley et al., 2005). Underutilization of family planning methods due to side effects is an important reason in Malaysia which constitutes about 27.5 percent (Ahmad et al., 2010).

According to an earlier study, even though the insights of T2DM women on the potential effects of the disease on pregnancy are relatively good, their fear of utilizing invasive family planning methods such as intrauterine devices (IUDs) can be persistent. In

this study, in comparison to the condom, the IUD caused fear in T2DM women with respect to, for example, the procedure, the risk of infection and the potential discomfort during sexual intercourse, which is in line with other studies (Asker et al., 2006; Gueye et al., 2015). Previous studies have indicated that sexual desires are closely related to family planning utilization. For example, a previous study found that couples using family planning methods are concerned about a decrease sexual pleasure if they utilize family planning methods such as the condom or IUD (Higgins, Hoffman, Graham, & Sanders, 2008). This study found that T2DM women were against using any family planning method that might affect their sexual relationship with their spouse. Instead, they choose methods that they perceive will not affect their sexual relationship, such as natural methods or they consume traditional preparations to space their pregnancies. Consistent with previous studies, this study found that side effects are a salient feature in nearly all the interviews with T2DM women and with healthcare providers, and that they influence these women's decision to adhere to or discontinue their use of family planning methods.

A number of previous studies have explored healthcare providers' knowledge on delivering family planning services. These studies have discovered that providers' low level of knowledge hampers the delivery of better family planning services (Dehlendorf, Levy, Kelley, Grumbach, & Steinauer, 2013; Haq & Hafeez, 2009; Mugisha & Reynolds, 2008). Similarly, this study revealed that providers have insufficient information on family planning, which prevents them from delivering effective holistic care to T2DM women and their spouses. Inadequate information on family planning among the providers also hinders the provision of basic counselling to T2DM women. This finding was in line with the observation. This study also found that, in the current system, primary healthcare facilities are divided into an outpatient department and a maternal child health (MCH) department. It

was noted that only the providers (both nurses and medical officers) working in MCH could provide resources and information on family planning to T2DM women. The segregation in the current system limits providers' ability to counsel T2DM women about family planning. This might be a factor in T2DM women underutilizing family planning methods and trying out other modalities such as traditional methods. Providing healthcare workers with additional information on health would increase their confidence in delivering the right health information on family planning to patients, which was highlighted in another study (Haq & Hafeez, 2009).

This study also noted that T2DM women could be easily convinced by the information that they had gathered from the people with whom they had a good relationship, as well as from people with whom they felt comfortable. However, at present, the quality of communication between clients and providers in primary healthcare centres is another obstacle to the effective delivery of family planning services. This was supported by the observation findings. Good communication skills are important, regardless of the T2DM women's socio-demographic background, and it affects their decision on the type of family planning method they need to utilize in order fulfil their personal goals and to improve their quality of life. This finding is in line with a previous study that argued in favour of a greater focus being placed on providers' communication skills in order to personalize family planning services and respect T2DM women's autonomy (Murphy et al., 2010). Based on the findings of the current study, it cannot be denied that a good provider–client relationship is of great importance for family planning utilization and should be further emphasized.

However, given the cultural context of Malaysia, the gender of the healthcare provider is an additional hindrance to open communication with T2DM women on family planning. Male providers rely on their female colleagues to counsel women on family

planning due to the sensitive nature of the issue and the discomfort that the women feel in discussing the matter with a male healthcare provider. Also, the usage simple language makes a lot of difference in the utilization of family planning services. From the interviews with healthcare providers, it is apparent that using Bahasa Melayu, the national language, and simple terms would enable a better understanding on family planning among T2DM women. Healthcare providers also feel that training in soft skills, especially communication skills, is greatly needed so that they could better treat clients. This would help them to avoid the usage of complicated medical terms and assist them in tackling each individual's concerns. In a similar vein, a previous study has suggested that the usage of plain language, paying attention to clients' cultural preferences, and discussing the important facts in advance combined with input from a health educator enhances knowledge and promotes clients' comprehension (Pazol, Zapata, Tregear, Mautone-Smith, & Gavin, 2015).

5.3.2 Interpersonal-level factors of SEM affecting family planning utilization

Previous studies have found that the information on family planning that T2DM women receive from those close to them, such as family members and friends is likely to affect the way in which they choose family planning methods (Hodgson et al., 2013; Lwin et al., 2013) This study found that T2DM women actively seek information from various sources, explore family planning options, and evaluate the best possible options. It also seems that social networks comprising family members, friends, peers, and healthcare providers can also be considered as part of the social influence affecting T2DM women's decision-making with respect to family planning utilization. This supports the findings of other studies that the input of advice and information plays a role in the making of decisions regarding family planning utilization among T2DM women (Hodgson et al., 2013; Lwin et al., 2013).

This study indicates that the involvement of husbands in counselling so that there is shared decision-making in family planning is essential for long-term family planning utilization. This is in line with other findings that show that involving husbands in counselling, especially those with a high-risk spouse, has higher value in influencing service delivery (Nekui et al., 2008; Rosliza & Majdah, 2010). This is because the information that the patients and their spouses acquire may come from the internet or other forms of social media via which patients have social interactions with the people around them. The increasing popularity of online networks and platforms for searching for and sharing health- and treatment-related information has led to their widespread use among patients. Moreover, the information acquired may circulate through social media very quickly, and if this information is inaccurate, the consequences could be serious. Thus, as emphasized by a previous study, the information that T2DM women acquire from non-professional or even unreliable sources could cause harm as these sources may lack credibility or evidence, or be inaccurate, which may eventually lead to poor decision-making on family planning by T2DM women (Ajaero et al., 2016).

The findings of this study showed that the utilization of family planning methods depends on the relationship between T2DM women and the members of their social network who provide them with information. In other words, it can be affected by the degree of trust they have in their healthcare providers, the social support they receive and the degree of comfort they feel with those who are providing advice (friends, family members and healthcare providers) (Hodgson et al., 2013; Lwin et al., 2013). These factors could influence T2DM women's decision-making process in utilizing family planning methods.

Religion has a great influence on family planning utilization from the perspective of the T2DM women interviewed in this study. However, the religious implications of family

planning are interpreted differently by the healthcare providers who follow the same religion. Saying that, the challenge to persuade T2DM to use family planning is greater when a provider who has a different religion or ethnicity counsels clients who believe that family planning utilization is forbidden. This study found that religious beliefs affect individual attitudes about and decision-making on family planning especially among those with a medical illness. This finding is consistent with that in other studies that highlighted that the religious point of view had an effect on utilizing family planning methods (Chuang et al., 2010; Mansor, Abdullah, et al., 2015). It has also been noted by prior research that rationalization of the family planning problem often conceals a personal as well as cultural and social unease and that this can apply just as much to healthcare professionals as users (Lakha & Glasier, 2006).

5.3.3 Organizational-level factors of SEM affecting family planning utilization

Under the organizational-level umbrella, the factors influencing family planning utilization and services were based on the views gathered from the healthcare providers in primary healthcare facilities. Management factors such as family planning supplies and staff issues were mentioned among the challenges encountered in delivering family planning services in primary healthcare facilities. The findings in this study revealed that there have been issues in supplying family planning methods according to the coverage determined by upper management, where demand outstrips supply, resulting in interrupted supplies which subsequently leads to the dropout of family planning clients, a problem seen in other work (Fontana & Frey, 1998). In order to provide a quality service to family planning clients, the personnel in charge of managing family planning methods must ensure that adequate supplies are on hand, that the family planning methods have not expired and that a complete range of

methods is available. Having sufficient supplies of family planning methods builds confidence in the service and ensures that clients will always return to the clinic.

Evidence from the observations and the interviews conducted for this study indicated that time and the high number of patients could contribute to a significant emphasis being placed on addressing the medical illness (T2DM), making it difficult to focus on other aspects of health such as reproductive health and associated family planning issues. There is a lack of consistency in how providers spend their time, which depends on their daily workload and the time factor for both the provider and the T2DM women. The observations done in this study support other evidence that providers address the T2DM women's disease and have less opportunity to query on family planning (Najafi-Sharjabad et al., 2013). This behaviour is a reflection of other factors affecting providers, such as the time constraint and workload. The finding of this study in this regard echoes previous evidence suggesting that time is a barrier to having sufficient encounters with T2DM women and thus exploring their needs in terms of family planning utilization (Hulme et al., 2015; Mortagy et al., 2010).

In this study, healthcare providers expressed the view that most clients are unable to express their concerns about family planning and that they are unable to counsel spouses together due to lack of privacy and confidentiality in the current consultation room setup. Thus the difficulty faced by the spouse in getting information from providers is likely due to the lack of confidentiality. This is another factor contributing to that underutilization of family planning services, as providers are unable to offer combined counselling. These findings are consistent with those of earlier study that found that T2DM women and spouses desire more privacy during consultations on sensitive issues such as family planning (Argago et al., 2015).

The segregation of care within the facility is also an obstacle to providing good family planning services to those who are in need. While health should be seen as an integrated concept it is actually divided in primary healthcare facilities, with the responsibility for family planning service delivery falling on the shoulders of staff in the MCH unit. Thus, it has been argued that commitment and staff support is highly needed in primary healthcare centres for service integration. A holistic approach to the needs of T2DM women could be achieved by linking and improving the services available in primary healthcare facilities. This is in line with another study that suggests that expanding resources and training both nurses and medical officers will enable them gain the best level of knowledge for better family planning service delivery (Chin-Quee et al., 2015; Yehuda, 2016).

The likelihood of T2DM women using family planning services also depends on several practical factors, such as the availability of transportation/travel to clinic as well as expenditure- and work-related issues associated with getting family planning services. The findings of this study revealed that lack of access to care is a hindrance to the utilization of family planning services; for example, T2DM women often depend on their husbands to get to the health clinic.

5.4 Suggestions from the Providers to Improve Family Planning Utilization and Services in Primary Healthcare Facilities

Providers with experience who are currently working in primary healthcare facilities suggested a few options to increase family planning utilization and services. These are categorized under four levels of the SEM: individual, interpersonal, organizational and community. Seven themes emerged from eliciting suggestions from the providers to improve family planning utilization and services among T2DM women, as illustrated in Figure 5.2.

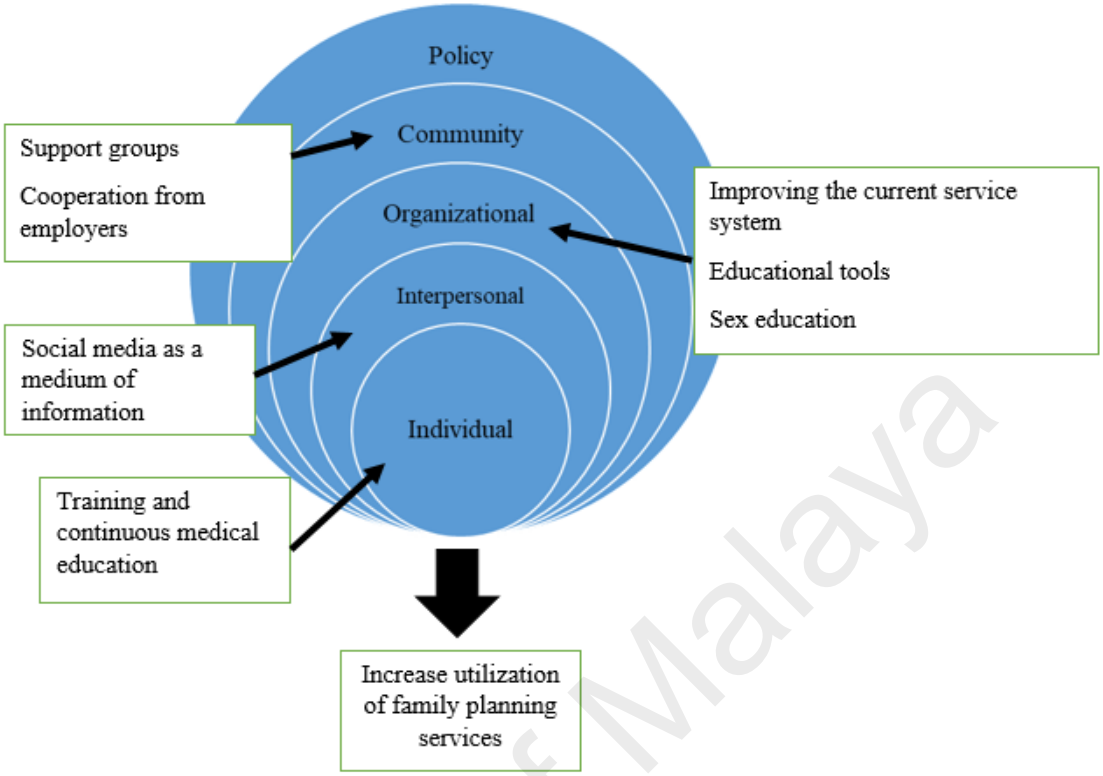


Figure 5.2: Suggestions to improve family planning services by the providers

5.4.1 Suggestions at the individual-level of the SEM

Healthcare providers should be equipped with knowledge on the relationship between family planning and diabetes care and receive training from time to time to increase their confidence in counselling diabetic women and spouses during their routine visits. Also, relevant courses on family planning should be conducted for all providers to avoid segregation of services. Studies have highlighted that provider training is important for improving knowledge in the context of family planning service delivery (Chin-Quee et al., 2015). Such studies have shown that significant changes can be seen among providers who receive trainings in family planning.

For the providers, training in soft skills and receiving family planning information via medical education is considered a priority in terms of the influence it could have on family

planning utilization and services. The findings of this study highlight the need to strengthen the family planning counselling provided during T2DM routine follow-ups in order to minimize the incidence of unplanned pregnancy. The lack of family planning counselling has been shown to be linked to the underutilization of family planning methods, consistent to one study (Schwarz et al., 2006). The findings in this study also suggest that providers should communicate with the spouses of T2DM women about family planning. Given that there are communication deficits in sexual health-related issues such as family planning between the women and healthcare providers, it has been suggested an increase in family planning communication may be accomplished by including the spouse in family planning counselling. This finding was supported one study (Rosliza & Majdah, 2010). While bringing their partners to the clinic may be a challenge for some T2DM women, the spousal involvement may increase family planning utilization among T2DM women.

5.4.2 Suggestions at the interpersonal-level of the SEM

Social media can be an important platform for disseminating information to a target audience. However, it is evident that the health information on social media presents new challenges for medical practitioners. Therefore it is necessary to maximize the positive impact of the information shared via social media. It can change people's perceptions on health information and increases knowledge. The knowledge acquired by T2DM women via social media can be shared with their spouse and better decision-making with regards to family planning can then be made. It has already been shown that social media is an important platform for spreading relevant information on family planning (Farmer et al., 2015; Nekui et al., 2008). Therefore, higher authorities should use this intervention channel to increase awareness among high-risk women

5.4.3 Suggestions at the organizational-level of the SEM

A multidisciplinary team should assist T2DM women in preparing for pregnancy. Healthcare providers must ensure that women with diabetes are evaluated and treated for complications if any before conception. Subsequently, inter-conception care for women with T2DM should include counselling and support regarding the spacing of pregnancies, healthy lifestyle and glucose management. A prior study has shown that, if teamwork is successfully implemented, then the consequent effective family planning utilization can have a significant and positive impact on T2DM women's life and lead them towards a healthier lifestyle (Yehuda, 2016).

In the current study, providers felt that, besides social media, educational tools such as posters and pamphlets would also help in spreading important facts on family planning. These tools could be used by clients at the facility while waiting for their consultation with the doctor. Educational interventions have been found to help increase clients' understanding of and positive changes in family planning utilization over a long period of time (Carter, Tregear, & Lachance, 2015; Nekui et al., 2008; Pazol et al., 2015). Educational tools also offer better insights and help clients to identify raise queries that can be discussed further with their healthcare providers, especially with regards to the methods available, as well as misconceptions and side effects. Sexual education should be provided to the T2DM women at reproductive age to improve their reproductive health. This consist of basic and accurate information about the risk of pregnancy and complications in poorly managed pre-existing diabetes. It will reinforce clear messages about family planning and encourage to utilize family planning methods.

5.4.4 Suggestions at the community-level of the SEM

Some providers thought that the presence of a support group in each primary healthcare clinic would useful. A support group would not only help T2DM women cope with the illness itself, it would also help them to tackle issues associated with their pregnancy, family and partners. These findings are concurrent with other studies, in which the support group were found to have a positive effect on family planning utilization (Manandhar et al., 2004; Reis, Ramiro, de Matos, & Diniz, 2011). A formal support group is essential and beneficial when positive group dynamics are developed. These groups can address and facilitate the expression of women's concerns about contraception and as a result positive outcomes are seen (Manandhar et al., 2004).

5.5 Strengths of the Study

There is a need to understand the perceptions of T2DM women and how they can influence their behaviours, and such an understanding cannot be built merely on numbers but is context bound. Therefore this study focused on capturing the needs of these women, their spouses and healthcare providers in relation to family planning utilization and services and on generating ideas to improve those services. To be able to understand the views and perceptions of the targeted populations in a specific and sensitive context, it is necessary to use a qualitative method. Therefore this study used in-depth interviews to collect information from the T2DM women and their spouses as well as from healthcare providers. The primary advantage of using the in-depth interview was that it provided much more detailed information about personal preferences, sensitive issues and the healthcare system which might not have been discussed in an open forum, such as a focus group. It also provided the participants with a relaxed atmosphere in which they could discuss issues related to the aim of this study.

The interview guide that was developed for this study included semi-structured questions to facilitate the interview process. This guide allowed flexibility, enabling the researcher and the participants to respond accordingly. Using an interview guide made it possible to have some control over the direction of the interview, in which certain topics needed to be covered, but there was still space for the researcher and the participants to follow new leads by probing certain questions further.

A pilot test was done before conducting the real data collection process. The interview guide was tested on diabetic women, their husbands and healthcare providers (including both doctors and nurses). This was done to ensure that all the participant groups understood the questions and were able to provide relevant answers. This test was also conducted to ensure that the answers were the desirable ones and were not influenced by the researcher and to thus avoid bias or prejudice. It was also useful for practice purposes and ensuring a smooth interview process.

The researcher also used a range of clinic documents for a few specific purposes in this study. First, a review of the relevant clinic documents helped the researcher to generate the necessary questions for the in-depth interviews, especially when interviewing healthcare providers. Second, these documents were used to verify the findings from the interviews. Another added advantage of having access to these documents was that there was no researcher influence over the secondary data and these documents provided up-to-date information on the management of patients in primary healthcare facilities.

The researcher's current role as a medical practitioner was also considered to offer a possible advantage in this study in terms of consistency in exploring information and the ability to explore the information provided by each participant. It was also imperative that the researcher had the ability to develop a good rapport with participants to ensure the

trustworthiness of data. Thus, the participation of the researcher became a necessity. A good rapport was first established between the researcher and each participant in order to encourage them to express their real perceptions with regards to family planning, its practice and service delivery. As a result, the participants felt more comfortable, which allowed them to express their real experiences in regards to seeking healthcare advice (clients) and the delivering of health services (providers), which might not have been revealed during a formal conversation.

In addition, as the researcher is also a Malaysian national, this provided another advantage in terms of being able to explore the perceptions of T2DM women within a local setting as the researcher had a good understanding of the local environment and culture as compared to other researchers who might be unfamiliar with them. This added advantage helped the researcher to avoid probing into sensitive issues which might have been uncomfortable for some participants.

Previous studies in local setting have not documented qualitative method for family planning utilization, and there are no reports which included T2DM women, spouse and healthcare providers together. Thus, results from this qualitative study have provided data on underutilization of family planning services in primary healthcare services. This documentation will assist health professionals and policy makers conducting further studies on existing programmes and improving current policies. The findings of this study are believed to have broader applicability to women with other pre-existing medical illnesses that are managed at primary healthcare facilities.

Overall, the SEM was a good fit as it enabled the researcher to clearly determine the factors affecting family planning utilization at primary healthcare facilities. Each level, from the individual level to the organizational, has its own significance and the factors at all levels

should be taken into consideration because they may influence a person's behaviour in regards to their decision-making about family planning. The major advantage of using SEM in this study was that it made it possible to identify strategies for behavioural and related interventional change. It is important for policymakers to look in depth at each factor at each level in order to ensure the effective implementation of a family planning programme. The study also applied triangulation to the data collection procedure by using different methods (in-depth interview, observation, document review) and sources including T2DM women, spouses and healthcare providers) and in the analysis process wherein member checking was completed to ensure the rigour and trustworthiness of the data.

5.6 Limitations of the Study

This study focused on a specific primary healthcare setting, so it only covered primary healthcare facilities in one district in one state, namely Gombak District in Selangor. However, primary healthcare clinics are the frontline of the healthcare system and have a higher percentage of patients with T2DM seeking care. As this research discusses the data derived from T2DM women, spouses and healthcare providers in primary care clinics in Gombak District, Selangor, in line with the nature of a qualitative study, the findings are unique and applicable to the above-mentioned populations. However, some of the findings may be generalized to a certain extent to, for example, other clients with a pre-existing high-risk medical illness (e.g., hypertension or heart disease) who are attending primary healthcare facilities.

The researcher played the main role in this qualitative study, specifically in the data collection and analysis as the primary interviewer and data analyst. Therefore the researcher may have missed some changes in the participants' behaviour and some of the content of the conversations during the observations due to technical issues such as taking notes. The

interpretation of the notes may also have been influenced by the researcher's working background. However, this was minimized through member checking and constant discussion with supervisors.

A separate interview guide was developed for each category of participant according to the objectives of this research. Also, several biases were addressed in this study. First, question bias was reduced by performing a pilot test. Any questions that were identified as leading were either rephrased or removed after discussion with supervisors. Lastly, as the data analysed originated from self-reported measures it may have inherent limitations related to recall bias.

There were many participants who were reluctant to be interviewed due to reasons such as not having the time, needing to take care of children, unwillingness to be interviewed, concerns about privacy, and the researcher being different in ethnicity. This reticence may also have been due to family planning being a culturally sensitive topic. To address this, the researcher explained that all the information would remain confidential and that they could decide not to answer any questions they perceived as sensitive. However, some participants still refused to participate, especially the spouses.

There were also times when the interviewer tended to give opinions during the interview, especially when participants expected some response. This happened early in the data collection phase. Improvements to technique were made during the subsequent interviews, and the researcher restrained herself from giving opinions and thereby improved her interviewing skills and the interview data was consequently enriched.

In an in-depth interview, the researcher can greatly influence the interpretation of the interview responses and select the parts of the data to be reported (Fontana & Frey, 1998). The researcher's previous working experience and knowledge of family planning may have

influenced the flow of the interview and interpretations of the transcripts unintentionally and thus produced bias. Lastly, two languages were used in this study (English and Bahasa Melayu) during the interviews mainly, so efforts were taken to ensure that the translation and interpretation of the content of the transcripts was accurate and that clear meanings were obtained from the participants during the interview process. Also, any potential gap in the meanings was narrowed as the researcher is fluent in both languages. This helped to ensure that the meanings of the interviews were unchanged.

5.7 Summary

The findings of this study help to shed light on different people's perspectives on family planning utilization and services. The application of the SEM helped to underline the factors affecting family planning utilization and services in primary healthcare facilities. From the findings, it is evident that T2DM women, their spouses and healthcare providers have their own specific barriers when it comes to family planning utilization and service delivery. The study highlights the role that spouses, peers, family members and healthcare providers play in T2DM women's utilization of family planning methods, by providing information and advice which may influence them. Hence, T2DM women should be encouraged to share their concerns about family planning with their healthcare providers, while providers should encourage T2DM women to confirm any new information they receive from sources other than medical experts. The findings of this study also indicate that family planning service delivery should be improved to sustain the continuous and long-term care of women with medical illnesses such as T2DM. A holistic approach is needed so that T2DM women can have better health and improved quality of life over the long term.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

The main aim of the study was to explore the factors influencing family planning utilization among T2DM women. In this chapter, the overall conclusion of the thesis draws on the important aspects of the findings, and the implications of the study are presented. Recommendations for future studies are subsequently highlighted in the final section of this chapter.

The findings of this study highlighted some unique characteristics of the T2DM women's experience in the utilization of family planning methods. Understanding T2DM and its relationship with family planning methods was found to be an important issue in the women's utilization of family planning methods. Although T2DM women had sufficient information on T2DM and benefits of family planning, they were reluctant to utilize family planning. Past unpleasant experiences, side effects and the influence of external sources influenced T2DM women in their utilization of family planning methods. The T2DM women utilized modern family planning methods if they could get the right information and education on how to adopt modern family planning methods and had the support of their husbands. Misconceptions about methods and the demand for certain methods were widely influenced by family members, friends and social media. The T2DM women were also concerned about the religious and cultural implications of using family planning methods.

The study also found that T2DM women had difficulties communicating with healthcare providers about family planning issues due to gender and language differences. Family planning is still a sensitive issue that is rarely discussed openly. Hence most T2DM women are reluctant to have an open discussion, especially with a male provider. They also

desire a trusting, non-judgemental approach and a positive relationship with their healthcare providers.

The spouse's perception of family planning was an important factor in influencing T2DM women's utilization of family planning methods. This study highlights that spouses are generally supportive about family planning utilization. However, ultimately they leave the decision to their wives and are also influenced by friends, family members and social media. This study provided evidence to indicate that the support of the spouse is essential in increasing the utilization of family planning methods.

Another aim of this study was to explore the factors influencing the provision of family planning services in primary healthcare facilities. Several unique themes were found; however, one particularly interesting theme was the inadequate knowledge and skills among the healthcare providers. When the providers experience a situation requiring family planning counselling, they direct the T2DM women to their colleagues working in maternal child health. Among the other themes that emerged were inadequate resources and a lack of system integration within primary healthcare facilities, both of which affect the quality of care, resulting in underutilization of family planning services in these facilities.

This study also elicited some suggestions from the healthcare providers to improve family planning utilization among T2DM women. Among them were training and continuous medical education, ensuring sufficient stock and improved service integration in primary healthcare facilities. Executing these suggestions needs teamwork and cooperation from higher authorities. In the following, the public health implications of the findings are presented in accordance with the social ecological model (SEM).

6.2 Public Health Implications

6.2.1 Individual-level factors in the SEM

A T2DM woman and their partner's ability to choose to become pregnant has a direct impact on her health and well-being. Family planning allows a delay in pregnancy in women with pre-existing illnesses who are at risk of increased mortality and morbidity. Healthy pregnancy spacing is also a strong contributing factor in reducing infant morbidity and mortality rates. Promoting family planning and ensuring access to different family planning methods for women and couples is vital for ensuring women's well-being and autonomy. It also supports the health and development of communities. Family planning also gives T2DM women an opportunity to participate in employment and to have a better health status. Utilization of family planning allows T2DM women to pursue further education and participate in public life. Besides, having a smaller family may reduce the likelihood of the family falling below the poverty line.

The medical costs of pregnancy and birth due to T2DM have high financial consequences. As mentioned earlier, the utilization of family planning is the most cost-effective intervention to reduce short birth intervals, pregnancy complications and sustain the health of T2DM women. It also leads to a better outcome in the next pregnancy. Parents are responsible for providing shelter, education, clothing and food for their children. Bringing up a child involves both cost and care. Hence, the utilization of family planning has an important long-term impact on the financial situation of a family.

6.2.2 Organizational-level factors in the SEM

Improved family planning services including information and counselling by the healthcare providers would result in increased utilization of family planning methods. Lowering fertility among T2DM women can reduce the pressure on providers and allow them

to concentrate on other aspects of healthcare for these women. The healthcare cost especially on hospitalization, can be reduced by this preventive and cost-effective measure.

6.3 Recommendations

The aim of the study was to explore the factors influencing family planning utilization among T2DM women. Various issues and factors were identified through this qualitative study. In addition, the healthcare providers who participated in the study suggested ways to improve family planning utilization and services, as discussed in chapter four. In light of the findings and their suggestions, the following recommendations are made by the researcher according to the SEM.

6.3.1 Individual-level factors in the SEM

Healthcare providers have expressed their concern on family planning training, both in counselling and procedure. It is important for providers, both medical officers and nurses, to receive increased and enhanced training to empower them to be able to better respond to and counsel T2DM women as well as their spouses about different family planning methods. Training for healthcare providers could be in the form of a course or role play. It would also be beneficial to incorporate counselling role play into the training sessions. This will enhance their communication skills and increase their confidence in counselling T2DM women and their spouses about family planning methods. Training will also be useful in terms of addressing issues related to method-specific side effects. Subsequently, after the training, the information should be shared with the other providers in the primary healthcare centre, so that all providers can appropriately refer T2DM women for specific methods and counselling. In addition, providers should be trained on procedures related to family planning methods, such as the insertion of implant and intrauterine devices. This training should not be confined to providers in the maternal child health department, but should also involve providers in the

outpatient department as well. This will increase providers' skills as well as reduce the burden of referral and the difficulties that T2DM women encounter when attending appointments at primary healthcare facilities.

6.3.2 Interpersonal-level factors in the SEM

Family members, most often the spouse, play an important role in family planning decision making, which has important implications for family planning utilization. In this regard, healthcare systems should recognize the importance of good collaboration between T2DM women and their spouses when delivering family planning services. Combined counselling for both T2DM women and their spouses has proven to be effective in increasing the utilization of family planning methods (Rosliza & Majdah, 2010). This strategy could provide sufficient and appropriate information to T2DM women and their spouses so that they can become wiser decision-makers capable of evaluating the benefits of family planning for the woman's health and the future of the family unit.

The higher health authorities may also wish to consider introducing peer support groups, not only for T2DM women, but also for their spouses in family planning utilization. These peer support groups should include experienced family planning users, who could be trained and could counsel other women by relating their personal experiences and sharing their strategies for coping with the known side effects. These trained personnel could also help to address culturally related issues. The support group is also a good way to increase awareness among men. There is a need to target and recruit men in the context of family planning intervention programmes in primary healthcare centres. Such an approach has the potential to instil a positive attitude among men towards family planning and simultaneously steer women towards family planning utilization.

A shared goal can be established to promote agreement among all parties on family planning utilization, when communication between the provider and clients restrained due to other factors. Creating a good rapport between providers and T2DM women can help to achieve this shared goal. It is important that the provider is approachable in order to ease the conversation with T2DM women. There is a need to identify the building blocks for improving the relationship between providers and T2DM woman. Also, in order to address the issues related to family planning utilization and service delivery in primary healthcare centres, identifying T2DM women goals and working together towards these goals could be an important step in improving family planning utilization and services.

6.3.3 Organizational-level factors in the SEM

Based on the findings of this study, it is also suggested that primary healthcare facilities develop a good strategy for assisting T2DM women to utilize family planning methods by providing better infrastructure. For example, they may wish to provide a suitable environment for promoting and advising T2DM women to achieve their pregnancy goals in an objective manner. A private room could be created in each facility to respect the confidentiality of the conversation between the T2DM women and their spouses. Also, the use of a private room would help T2DM women to address the issues related to family planning utilization. Efforts should be taken to create a more patient-friendly environment, and this should be seen as part of the process of empowering T2DM women to take more responsibility for their reproductive health.

The financial situation of the family can hinder T2DM women's utilization of family planning methods. This especially the case with regard to seeking family planning services in the private sector, which come at a high cost. However, this may not remain a barrier if public healthcare facilities have the option to access readily available supplies and long-term

family planning methods. Thus, primary healthcare facilities need to find ways to overcome financial barriers and reduce the burden of T2DM women. One of the ways in which they could do this would be to provide long-term family planning methods at primary healthcare facilities. For instance, long-term family planning methods such as Implanon could be provided at a cheaper rate and made easily available in primary healthcare facilities.

A multidisciplinary team should be involved in assisting T2DM women in preparing for pregnancy. Healthcare providers must ensure that women with T2DM are evaluated and treated for complications if any before conception. An integrated service should be available for T2DM women pre, during and post pregnancy, and should also involve a family medicine specialist. Lastly, family planning should become an integral part of general healthcare education in order to ensure continuous education delivery to those in need.

6.3.4 Community-level factors in the SEM

Another strategy that could be considered is enhancing sex education and family planning in secondary schools and universities. A previous study has shown that the provision of sex education in school leads to a better outcome in regards to utilizing family planning methods in later life (Reis et al., 2011). Even though sex education was introduced in schools in Malaysia many years ago, there is still a lack of implementation. This could be addressed through the collaboration of the Ministry of Health and Ministry of Education of Malaysia to increase awareness and insights among young people about their own reproductive health.

6.3.5 Policy-level factors in the SEM

To achieve a better impact on services, a more comprehensive, multi-level approach from policy to service delivery involving both women and men is needed in the future. This should involve the implementation of a gender-responsive family planning programme.

Policymakers need to consider the views of staff on the ground and working on the frontline before any future programmes are planned or implemented, especially when the increasing patient load is a concern. This will help to get some insights on the burden and multitasking work that providers face. Future family planning programmes must be socially and culturally sensitive, economical, sustainable and long lasting. In this way, any future programmes targeted at the primary care level can be implemented and executed efficiently.

Family planning services are not only available in primary healthcare facilities; they can be obtained from other facilities or agencies, as discussed in chapter one. Sharing family planning-related information with other agencies to seek for family planning result in benefits for T2DM women. Where possible, professional agencies and private practitioners could collaborate with public primary healthcare facilities to create a platform that could serve the family planning needs of patients. Since providers see the promotion of family planning as a responsibility of the government and there is a lack of family planning materials outside of their facilities, governmental and non-governmental organizations should conduct campaigns encouraging family planning utilization and should distribute promotional materials to providers directly so that they can market their services to T2DM women.

6.4 Suggested Future Directions for Researchers

This study focused on family planning utilization among T2DM women in a selected district. This study did not attempt to find out women's perceptions on this issue from a religious point of view. Thus a future study could explore the utilization of family planning from different religious points of view to gain more insights into the perspectives of different ethnicities, which would be especially useful for a country such as Malaysia. Studies could also be undertaken in rural areas in the country to explore family planning utilization among women in a different setting to that of the current study. For population who live in rural

areas, this is an important area of investigation for future studies on the utilization of family planning in the country.

This study was conducted at a very basic organizational level. As the findings were based only on the data derived from primary healthcare centres, this study needs to be replicated in tertiary-level centres in order to investigate the factors influencing family planning utilization at a higher level. Future studies are also needed in order to observe the skills of healthcare providers in delivering counselling to clients on family planning methods.

As mentioned earlier, this study used a qualitative study design and collected data from a small sample. Also, as discussed earlier in the above subsection on limitations, it is difficult to generalize the findings. However, future studies could be designed to employ a quantitative approach to cover a wider population and larger sample from which conclusions and generalizations could be drawn.

The candidature of this DrPH programme and the journey towards the development of this dissertation was an interesting endeavour. The journey for this research was started back in 2015, reading, collecting journals and preparing for research proposal. As time passes by, data collection, analysing, writing and attending conferences took place. Looking back at the processes of conducting this research, there were many challenges, among challenges faced by the researcher – conducting qualitative study and effective communication with study participants; and secondly was accomplishing the research within constrained resources such as time. Despite the challenges, this study was successfully conducted through believing in Almighty and oneself, acknowledging supervisors for guidance and courage, and balancing study, family and friends.

Bibliography

Abraham, W., Adamu, A., & Deresse, D. (2010). The involvement of Men in family planning an application of Tran-theoretical model in Wolaita Soddo town South Ethiopia. *Asian J Med Sci, 2*.

Adongo, P. B., Tapsoba, P., Phillips, J. F., Tabong, P. T.-N., Stone, A., Kuffour, E. Akweongo, P. (2013). The role of community-based health planning and services strategy in involving males in the provision of family planning services: a qualitative study in Southern Ghana. *Reproductive Health, 10*, 36-36

Agha, S. (2010). Intentions to use contraceptives in Pakistan: implications for behavior change campaigns. *BMC Public Health, 10*(1), 450.

Ahmad, N., Tey, N., Kamarul Zaman, K., Muhd Sapri, N., Abdul Manaf, N., & Yeoh, Y. (2010). Status of family planning in Malaysia *Family Planning in Asia and Pacific Region* (pp. 1-29): National Population and Family Development Board (NPFDB) Bangkok, Thailand

Ahmed, F. A., Moussa, K. M., Petterson, K. O., & Asamoah, B. O. (2012). Assessing knowledge, attitude, and practice of emergency contraception: a cross-sectional study among Ethiopian undergraduate female students. *BMC Public Health, 12*(1), 110.

Ajaero, C. K., Odimegwu, C., Ajaero, I. D., & Nwachukwu, C. A. (2016). Access to mass media messages, and use of family planning in Nigeria: a spatio-demographic analysis from the 2013 DHS. *BMC Public Health, 16*(1), 427.

Akers, A. Y., Schwarz, E. B., Borrero, S., & Corbie-Smith, G. (2010). Family Discussions about Contraception and Family Planning: A Qualitative Exploration of Black Parent and Adolescent Perspectives. *Perspectives on Sexual and Reproductive Health, 42*(3), 160-167.

Akman, M., Tüzün, S., Uzuner, A., Başgul, A., & Kavak, Z. (2010). The influence of prenatal counselling on postpartum contraceptive choice. *Journal of International Medical Research, 38*(4), 1243-1249.

Alberti, K. G. M. M., & Zimmet, P. f. (1998). Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: diagnosis and classification of diabetes mellitus. Provisional report of a WHO consultation. *Diabetic Medicine, 15*(7), 539-553.

Ali, S., Rozi, S., & Mahmood, M. (2004). Prevalence and factors associated with practice of modern contraceptive methods among currently married women in district naushahro feroze Karachi Pakistan. *JPMA, 54*.

Aliasgharzadeh, A., Aghamohammadzadeh, N., Mobasseri, M., Niafar, M., Najafipour, F., Bahrami, A., Mashrabi, O. (2008). Study of Contraception Status of Female Diabetic Patients in Childbearing Years. *Research Journal of Biological Sciences, 3*(7), 710-715.

Alkema, L., Kantorova, V., Menozzi, C., & Biddlecom, A. (2013). National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. *The Lancet, 381*(9878), 1642-1652.

Ann, T. B., Peng, T. N., & Razak, R. A. (1985). *Ethnicity and Fertility in Malaysia* (Vol. 52): Institute of Southeast Asian Studies.

Aransiola, J. O., Akinyemi, A. I., & Fatusi, A. O. (2014). Women's perceptions and reflections of male partners and couple dynamics in family planning adoption in selected urban slums in Nigeria: a qualitative exploration. *BMC Public Health, 14*, 869.

Argago, T. G., Hajito, K. W., & Kitila, S. B. (2015). Clients satisfaction with family planning services and associated factors among family planning users in Hossana Town Public Health Facilities, South Ethiopia: Facility-based cross-sectional study. *International Journal of Nursing and Midwifery, 7*(5), 74-83.

Asker, C., Stokes-Lampard, H., Wilson, S., & Beavan, J. (2006). What is it about intrauterine devices that women find unacceptable? Factors that make women non-users: a qualitative study. *Journal of Family Planning and Reproductive Health Care, 32*(2), 89-94.

Association, A. D. (2002). Preconception care of women with diabetes. *Diabetes Care, 25*(suppl 1), s82-s84.

Atuoye, K. N., Dixon, J., Rishworth, A., Galaa, S. Z., Boamah, S. A., & Luginaah, I. (2015). Can she make it? Transportation barriers to accessing maternal and child health care services in rural Ghana. *BMC Health Services Research, 15*.

Azmat, S. K. (2011). Mobilizing male opinion leaders' support for family planning to improve maternal health: a theory-based qualitative study from Pakistan. *J Multidiscip Healthc, 4*.

Azmat, S. K., Mustafa, G., Hameed, W., Ali, M., Ahmed, A., & Bilgrami, M. (2012). Barriers and perceptions regarding different contraceptives and family planning practices amongst men and women of reproductive age in rural Pakistan: a qualitative study. *Pakistan Journal of Public Health, 2*(1), 17-23.

Bajaj, S., Jawad, F., Islam, N., Mahtab, H., Bhattarai, J., Shrestha, D. Aye, T. T. (2013). South Asian women with diabetes: psychosocial challenges and management: consensus statement. *Indian Journal of Endocrinology and Metabolism, 17*(4), 548.

Balogun, O., Adeniran, A., Fawole, A., Adesina, K., Aboyeji, A., & Adeniran, P. (2016). Effect of male partner's support on spousal modern contraception in a low resource setting. *Ethiopian Journal of Health Sciences, 26*(5), 439-448.

Bankole, A., & Singh, S. (1998). Couple's fertility and contraceptive decision-making in developing countries: hearing the man's voice. *Int Fam Plan Perspec, 24*.

Bawah, A. (2002). Spousal communication and family planning behavior in Navrongo: a longitudinal assessment. *Stud Fam Plann, 33*.

Becker, D., Klassen, A. C., Koenig, M. A., LaVeist, T. A., Sonenstein, F. L., & Tsui, A. O. (2009). Women's perspectives on family planning service quality: an exploration of differences by race, ethnicity and language. *Perspectives on Sexual and Reproductive Health, 41*(3), 158-165.

Becker, M. H., Drachman, R. H., & Kirscht, J. P. (1974). A new approach to explaining sick-role behavior in low-income populations. *American Journal of Public Health, 64*(3), 205-216.

Beekle, A. T., & McCabe, C. (2006). Awareness and determinants of family planning practice in Jimma, Ethiopia. *International Nursing Review, 53*(4), 269-276.

Bennett, W. L., Ennen, C. S., Carrese, J. A., Hill-Briggs, F., Levine, D. M., Nicholson, W. K., & Clark, J. M. (2011). Barriers to and facilitators of postpartum follow-up care in women with recent gestational diabetes mellitus: a qualitative study. *Journal of Women's Health, 20*(2), 239-245.

Berkwits, M., & Inui, T. S. (1998). Making Use of Qualitative Research Techniques. *Journal of General Internal Medicine, 13*(3), 195-199.

Bertrand, J. T., Hardee, K., Magnani, R. J., & Angle, M. A. (1995). Access, Quality Of Care And Medical Barriers In Family-Planning Programs. *International Family Planning Perspectives, 21*(2), 64-&.

Bhasin, S., Pant, M., Metha, M., & Kumar, S. (2005). Prevalence of usage of different contraceptive methods in East Delhi-A cross sectional study. *Indian J Community Med, 30*(2), 53-55.

Bibi, S., Abbasi, R. M., Awan, S., Qazi, R. A., & Ashfaque, S. (2013). Impact of training on general practitioner's knowledge, attitude and practices regarding emergency contraception in Hyderabad. *Pakistan Journal of Medical Sciences, 29*(5), 1212.

Biddlecom, A., & Fapohunda, B. (1998). Covert contraceptive use: prevalence, motivations, and consequences. *Stud Fam Plann, 29*.

Biruk, T., Assefa, H., & Georges, R. (2008). The prevalence of Covert use of contraceptives in Nazareth/Adama town. *Eur J Contracept Reprod Health Care, 1*

Blake, M., & Babalola, S. (2002). Impact of a male motivation campaign on family planning ideation and practice in Guinea *Field Report No.13*. Baltimore, MD: Johns Hopkins University Bloomberg School of Public Health, Center for Communication Programs

Borrero, S., Nikolajski, C., Steinberg, J. R., Freedman, L., Akers, A. Y., Ibrahim, S., & Schwarz, E. B. (2015). "It just happens": a qualitative study exploring low-income women's perspectives on pregnancy intention and planning. *Contraception, 91*(2), 150-156.

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27-40.

Braun, V. a. C., V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3 (2)*, pp. 77-101.

Brazil, K., Ozer, E., Cloutier, M. M., Levine, R., & Stryer, D. (2005). From theory to practice: improving the impact of health services research. *BMC Health Services Research, 5*(1), 1.

Britton, L. E., Berry, D. C., & Crandell, J. L. (2017). Contraceptive use patterns among women with prediabetes, undiagnosed diabetes and diagnosed diabetes. *Contraception, 96*(4), 283-284.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*(7), 513.

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. *American Psychologist, 32*, 513-531.

Campbell, M., Nuriye, N., & Malcolm, P. (2006). Barriers to fertility regulation: a review of the literature. *Stud Fam Plann, 37*.

Capurchande, R., Coene, G., Roelens, K., & Meulemans, H. (2017). "If I have only two children and they die… who will take care of me?" –a qualitative study exploring knowledge, attitudes and practices about family planning among Mozambican female and male adults. *BMC Women's Health, 17*(1), 66.

Carter, M. W., Tregear, M. L., & Lachance, C. R. (2015). Community engagement in family planning in the US: a systematic review. *American journal of preventive medicine, 49*(2), S116-S123.

Casterline, J., Perez, A. E., & Biddlecom, A. (1997). Factors Underlying Unmet Need for Family Planning in the Philippines (Vol. 28).

Cates Jr, W. (2010). Family planning: the essential link to achieving all eight Millennium Development Goals. *Contraception, 81*(6), 460-461.

Charmaz, K. (2004). Premises, principles, and practices in qualitative research: Revisiting the foundations. *Qualitative health research, 14*(7), 976-993.

Chavane, L., Dgedge, M., Bailey, P., Loquiha, O., Aerts, M., & Temmerman, M. (2016). Assessing women's satisfaction with family planning services in Mozambique. *J Fam Plann Reprod Health Care*, jfprhc-2015-101190.

Chayovan, N., Hermalin, A. I., & Knodel, J. (1984). Measuring accessibility to family planning services in rural Thailand. *Studies in Family Planning, 15*(5), 201-211.

Chebet, J. J., McMahon, S. A., Greenspan, J. A., Mosha, I. H., Callaghan-Koru, J. A., Killewo, J., Winch, P. J. (2015). "Every method seems to have its problems"-Perspectives on side effects of hormonal contraceptives in Morogoro Region, Tanzania. *BMC Women's Health, 15*(1), 97.

Cheekurthy, A. (2016). Prevalence of Type 2 Diabetes Mellitus among Women and the Associated Risk Factors. *Journal of Nursing and Health Sciences*.

Chin-Quee, D., Mugeni, C., Nkunda, D., Uwizeye, M. R., Stockton, L. L., & Wesson, J. (2015). Balancing workload, motivation and job satisfaction in Rwanda: assessing the effect of adding family planning service provision to community health worker duties. *Reproductive health, 13*(1), 2.

Chuang, C. H., Velott, D. L., & Weisman, C. S. (2010). Exploring Knowledge and Attitudes Related to Pregnancy and Preconception Health in Women with Chronic Medical Conditions. *Maternal and Child Health Journal, 14*(5), 713-719.

Clausen, T. D., Mathiesen, E., Ekbom, P., Hellmuth, E., Mandrup-Poulsen, T., & Damm, P. (2005). Poor pregnancy outcome in women with type 2 diabetes. *Diabetes care, 28*(2), 323-328.

Cleland, J., Bernstein, S., Ezeh, A., Faundes, A., Glasier, A., & Innis, J. Family planning: the unfinished agenda. *The Lancet, 368*(9549), 1810-1827.

Cohen, S. I., & Burger, M. (2000). *Partnering: A new approach to sexual and reproductive health*: United Nations Population Fund New York.

Coleman, M., & Alonso, A. (2016). A Qualitative Study Exploring How Family Planning Beliefs and Attitudes Contribute to Family Planning Behavior in Rural, Southeastern Kenya: Application of the Social Ecological Model. *World Medical & Health Policy, 8*(4), 364-381.

Cooper, J., Lewis, R., & Urquhart, C. (2004). Using participant or non-participant observation to explain information behaviour. *Information Research, 9*(4), 9-4.

Correa, M. S., Feliciano, K. V., Pedrosa, E. N., & Souza, A. I. (2014). Women's perception concerning health care in the post-partum period: a meta-synthesis. *Open Journal of Obstetrics and Gynecology, 4*(07), 416.

Dehlendorf, C., Levy, K., Kelley, A., Grumbach, K., & Steinauer, J. (2013). Women's preferences for contraceptive counseling and decision making. *Contraception, 88*(2), 250-256.

Denzin, N. K. L., Yvonna S (1998). *Collecting and interpreting qualitative materials, Handbook of qualitative research* (Vol. 3): Sage Publications, Thousand Oaks, Calif

Dhingra, R., Manhas, S., Kohli, N., & Mushtaq, A. (2010). Attitude of couples towards family planning. *Journal of Human Ecology, 30*(1), 63-70.

Dieleman, M., & Harnmeijer, J. W. (2006). Improving health worker performance: in search of promising practices. *Geneva: World Health Organization*, 5-34.

Dover, G. J. (2009). The Barker hypothesis: how paediatricians will diagnose and prevent common adult-onset diseases. *Transactions of the American Clinical and Climatological Association, 120*, 199.

Dudgeon, M., & Inhorn, M. (2004). Men's influences on women's reproductive health: medical anthropological perspectives. *Soc Sci Med, 59*.

Durowade, K. A., Omokanye, L. O., Elegbede, O. E., Adetokunbo, S., Olomofe, C. O., Ajiboye, A. D., Sanni, T. A. (2017). Barriers to contraceptive uptake among women of reproductive age in a semi-urban community of Ekiti State, Southwest Nigeria. *Ethiopian Journal of Health Sciences, 27*(2), 121-128.

Elliott, R., & Timulak, L. (2005). Descriptive and interpretive approaches to qualitative research. *A Handbook of Research Methods for Clinical and Health Psychology, 1*, 147-159.

Etukudo, I. W., & Ben, V. E. (2014). Transport Cost and the Use of Family Planning As A Preventive And Promotion Health Care Strategies In Rural Akwa Ibom State Of Nigeria. *British Journal of Education, 2*(4), 63-72.

Farmer, D. B., Berman, L., Ryan, G., Habumugisha, L., Basinga, P., Nutt, C.Rich, M. L. (2015). Motivations and Constraints to Family Planning: A Qualitative Study in Rwanda's Southern Kayonza District. *Global Health: Science and Practice, 3*(2), 242-254

Fathalla, M. F., Sinding, S. W., Rosenfield, A., & Fathalla, M. M. (2006). Sexual and reproductive health for all: a call for action. *The Lancet, 368*(9552), 2095-2100.

Feder, G. S., Hutson, M., Ramsay, J., & Taket, A. R. (2006). Women exposed to intimate partner violence: expectations and experiences when they encounter health care professionals: a meta-analysis of qualitative studies. *Archives of Internal Medicine, 166*(1), 22-37.

Federation, I. D. (2015). *IDF member associations in Western Pacific.* From Retrieved 18th May 2015, from http://www.idf.org/membership/wp

Feig, D. S., & Palda, V. A. (2002). Type 2 diabetes in pregnancy: a growing concern. *The Lancet, 359*(9318), 1690-1692.

Feisul, M., & Azmi, S. (2013). National Diabetes Registry Report, Volume 1, 2009–2012. *Kuala Lumpur: Ministry of Health, Malaysia*.

Fisher, W. A., & Black, A. (2007). Contraception in Canada: a review of method choices, characteristics, adherence and approaches to counselling. *Canadian Medical Association Journal, 176*(7), 953-961.

Fontana, A., & Frey, J. H. (1998). Interviewing: The Art of Science. Teoksessa Norman K Denzin & Yvonna S Lincoln Collecting and Interpreting Qualitative Materials: USA: Sage Publications.

Fort, A. L. (1989). Investigating the Social Context of Fertility and Family Planning: A Qualitative Study in Peru. *International Family Planning Perspectives, 15*(3), 88-95.

Foss, C., & Ellefsen, B. (2002). The value of combining qualitative and quantitative approaches in nursing research by means of method triangulation. *Journal of Advanced Nursing, 40*(2), 242-248.

Fossey, E., Harvey, C., McDermott, F., & Davidson, L. (2002). Understanding and evaluating qualitative research. *Australian and New Zealand Journal of Psychiatry, 36*(6), 717-732.

Freedman, R. (1987). The contribution of social science research to population policy and family planning program effectiveness. *Studies in family planning, 18*(2), 57-82.

Fund", U. N. P. (1998). *The right to choose: reproductive rights and reproductive health*: United Nations Population Fund.

Galerneau, F., & Inzucchi, S. E. (2004). Diabetes mellitus in pregnancy. *Obstetrics and gynecology clinics of North America, 31*(4), 907-933.

Gammeltoft, T. (2012). *Women's bodies, women's worries: Health and family planning in a Vietnamese rural commune*: Routledge.

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). *Methods of data collection in qualitative research: Interviews and focus groups* (Vol. 204).

Glanz, K., Rimer, B. K., & Viswanath, K. (2008). *Health behavior and health education: theory, research, and practice*: John Wiley & Sons.

Greenbank, P. (2003). *The Role of Values in Educational Research: The case for reflexivity* (Vol. 29).

Greene, M. E. (2000). Changing women and avoiding men: gender stereotypes and reproductive health programmes. *IDS Bull Inst Deve Stud, 31*.

Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough? *Field Methods, 18*(1), 59-82.

Gueye, A., Speizer, I. S., Corroon, M., & Okigbo, C. C. (2015). Belief in family planning myths at the individual and community levels and modern contraceptive use in urban Africa. *International perspectives on sexual and reproductive health, 41*(4), 191.

Haider, S., Todd, C., Ahmadzai, M., Rahimi, S., Azfar, P., Morris, J. L., & Miller, S. (2009). Childbearing and contraceptive decision making amongst Afghan men and women: a qualitative analysis. *Health Care Women Int, 30*.

Haile, A., & Enqueselassie, F. (2006). Influence of women's autonomy on couple's contraception use in Jimma town Ethiopia. *Ethiop J Health Dev, 20*.

Hailemariam, A., Mekbib, T., & Fantahun, M. (2006). Family Planning in Ethiopia. In Y. Berhane, D. Hailemariam & H. Kloos (Eds.), *Epidemiology and Ecology of Health and Disease in Ethiopia*. Addis Ababa: Shama Books

Hales, D. (2010). An introduction to triangulation. *UNAIDS monitoring and evaluation*.

Hall, K. S. (2012). The health belief model can guide modern contraceptive behavior research and practice. *Journal of Midwifery & Women's Health, 57*(1), 74-81.

Haq, Z., & Hafeez, A. (2009). Knowledge and communication needs assessment of community health workers in a developing country: a qualitative study. *Human resources for health, 7*(1), 59.

Harper, M., & Cole, P. (2012). Member checking: can benefits be gained similar to group therapy? *The Qualitative Report, 17*(2), 510-517.

Hartmann, M., Gilles, K., Shattuck, D., Kerner, B., & Guest, G. (2012). Changes in Couples' Communication as a Result of a Male-Involvement Family Planning Intervention. *Journal of Health Communication, 17*(7), 802-819.

Harvey, C., Seib, C., & Lucke, J. (2009). Continuation rates and reasons for removal among Implanon® users accessing two family planning clinics in Queensland, Australia. *Contraception, 80*(6), 527-532.

Higgins, J. A., Hoffman, S., Graham, C. A., & Sanders, S. A. (2008). Relationships between contraceptive method and sexual pleasure and satisfaction: Results from the Women's Wellbeing and Sexuality Study. *Sexual Health, 5*(4), 321-330.

Hodgson, E. J., Collier, C., Hayes, L., Curry, L. A., & Fraenkel, L. (2013). Family planning and contraceptive decision-making by economically disadvantaged, African–American women. *Contraception, 88*(2), 289-296.

Hulme, J., Dunn, S., Guilbert, E., Soon, J., & Norman, W. (2015). Barriers and facilitators to family planning access in Canada. *Healthcare Policy, 10*(3), 48.

Hussein, Z., Taher, S. W., Singh, H. K. G., & Swee, W. C. S. (2015). Diabetes care in Malaysia: Problems, new models, and solutions. *Annals of global health, 81*(6), 851-862.

I. Fusch, P., & Ness, L. (2015). *Are We There Yet? Data Saturation in Qualitative Research* (Vol. 20).

Ibnouf, A., Van Den Born, H., & Maarse, J. (2007). Utilization of family planning services by married Sudanese women of reproductive age. *East Mediterr Health J, 13*.

Ibrahim, W. N., Junid, S. M. A. S., Aziz, A. A., Bachok, N. a., Noor, N. M., & Ismail, A. (2014). Patient cost for type 2 diabetes mellitus outpatient care. *International Medical Journal, 21*(3), 338-342.

Ijadunola, M. Y., Abiona, T. C., Ijadunola, K. T., Afolabi, O. T., Esimai, O. A., & OlaOlorun, F. M. (2010). Male involvement in family planning decision making in Ile-Ife, Osun State, Nigeria. *Afr J Reprod Health, 14*.

Jain, A., & Jain, A. (2010). Family planning in Asia and the Pacific addressing the challenges.

Jain, A., Reichenbach, L., Ehsan, I., & Rob, U. (2017). "Side effects affected my daily activities a lot": a qualitative exploration of the impact of contraceptive side effects in Bangladesh (Vol. Volume 8).

Jalang'o, R., Thuita, F., Barasa, S. O., & Njoroge, P. (2017). Determinants of contraceptive use among postpartum women in a county hospital in rural KENYA. *BMC public health, 17*(1), 604.

Janz, N. K., Herman, W. H., Becker, M. P., Charron-Prochownik, D., Shayna, V. L., Lesnick, T. G. Sanfield, J. A. (1995). Diabetes and pregnancy: factors associated with seeking pre-conception care. *Diabetes Care, 18*(2), 157-165.

Jato, M. N., Simbakalia, C., Tarasevich, J. M., Awasum, D. N., Kihinga, C. N., & Ngirwamungu, E. (1999). The impact of multimedia family planning promotion on the contraceptive behavior of women in Tanzania. *International Family Planning Perspectives*, 60-67.

John, N. A., Babalola, S., & Chipeta, E. (2015). Sexual pleasure, partner dynamics and contraceptive use in Malawi. *International perspectives on sexual and reproductive health, 41*(2), 99-107.

Ju, H., Rumbold, A. R., Willson, K. J., & Crowther, C. A. (2008). Borderline gestational diabetes mellitus and pregnancy outcomes. *BMC Pregnancy and Childbirth, 8*(1), 31.

Juma, P. A., Mutombo, N., & Mukiira, C. (2015). Women's attitudes towards receiving family planning services from community health workers in rural Western Kenya. *African health sciences, 15*(1), 161-170.

Kabagenyi, A., Jennings, L., Reid, A., Nalwadda, G., Ntozi, J., & Atuyambe, L. (2014). Barriers to male involvement in contraceptive uptake and reproductive health services: a qualitative study of men and women's perceptions in two rural districts in Uganda. *Reproductive Health, 11*(1), 21.

Kabagenyi, A., Reid, A., Ntozi, J., & Atuyambe, L. (2016). Socio-cultural inhibitors to use of modern contraceptive techniques in rural Uganda: a qualitative study. *The Pan African Medical Journal, 25*.

Kaida, A., Kipp, W., Hessel, P., & Konde-Lule, J. (2005). Male participation in family planning: results from a qualitative study in Mpigi District, Uganda. *J Biosocial Sci, 37*.

Kana, M. A., Tagurum, Y. O., Hassan, Z. I., Afolanranmi, T. O., Ogbeyi, G. O., Difa, J. A., Chirdan, O. O. (2016). Prevalence and determinants of contraceptive use in rural Northeastern Nigeria: Results of a mixed qualitative and quantitative assessment. *Annals of Nigerian Medicine, 10*(1), 3.

Kanagaratnam, K. (1968). Family planning in Singapore. *Report/Victor-Bostrom Fund for the International Planned Parenthood Federation. Victor-Bostrom Fund* (10), 18.

Kane, T. T., Gueye, M., Speizer, I., Pacque-Margolis, S., & Baron, D. (1998). The impact of a family planning multimedia campaign in Bamako, Mali. *Studies in family planning*, 309-323.

Kasim, R., Draman, N., Kadir, A. A., & Muhamad, R. (2016). Knowledge, Attitudes and Practice of Preconception Care among Women Attending Maternal Health Clinic in Kelantan. *Education in Medicine Journal, 8*(4).

Kawulich, B. B. (2005). *Participant observation as a data collection method.* Paper presented at the Forum Qualitative Sozialforschung/Forum: Qualitative Social Research.

Kebede, Y. (2006). Contraceptive prevalence in dembia district, northwest Ethiopia. *Ethiop J Health Dev, 20*.

Keesara, S. R., Juma, P. A., & Harper, C. C. (2015). Why do women choose private over public facilities for family planning services? A qualitative study of post-partum women in an informal urban settlement in Kenya. *BMC Health Services Research, 15*, 335.

Khan, K. S., Wojdyla, D., Say, L., Gülmezoglu, A. M., & Van Look, P. F. (2006). WHO analysis of causes of maternal death: a systematic review. *The lancet, 367*(9516), 1066-1074.

Khan, S., Bradley, S., Fishel, J., & Mishra, V. (2008). Uganda further analysis: unmet need and the demand for family planning in Uganda *Further analysis of the Uganda Demographic and Health Surveys, 1995–2006*

Kim, Y. (2011). The pilot study in qualitative inquiry: Identifying issues and learning lessons for culturally competent research. *Qualitative Social Work, 10*(2), 190-20

Kim, Y., & Kols, A. (2001). Counseling and communicating with men to promote family planning in Kenya and Zimbabwe: findings, lessons learned, and programme suggestions *Programming for male involvement in reproductive health*. Geneva, Switzerland: World Health Organization

Kim, Y. M., Kols, A., & Mucheke, S. (1998). Informed choice and decision-making in family planning counseling in Kenya. *International Family Planning Perspectives*, 4-42.

Kim, Y. M., & Lettenmaier, C. (1995). *Tools to Assess Family Planning Counseling: Observation and Interview*: Johns Hopkins School of Public Health, Center for Communications Programs.

Korra, A. (1997). Community based family planning services: a performance assessment of the jimma FPCBD project. *Ethiop J Health Dev, 11*.

Lakha, F., & Glasier, A. (2006). Unintended pregnancy and use of emergency contraception among a large cohort of women attending for antenatal care or abortion in Scotland. *The Lancet, 368*(9549), 1782-1787.

Letchuman, G., Wan Nazaimoon, W., Wan Mohamad, W., Chandran, L., Tee, G., Jamaiyah, H., Ahmad Faudzi, Y. (2010). Prevalence of diabetes in the Malaysian national health morbidity survey III 2006. *Med J Malaysia, 65*(3), 180-186.

Lopez, L. M., Tolley, E. E., Grimes, D. A., & Chen-Mok, M. (2009). Theory-based strategies for improving contraceptive use: a systematic review. *Contraception, 79*(6), 411-417.

Lozano, R., Wang, H., Foreman, K. J., Rajaratnam, J. K., Naghavi, M., Marcus, J. R.Atkinson, C. (2011). Progress towards Millennium Development Goals 4 and 5 on maternal and child mortality: an updated systematic analysis. *The Lancet, 378*(9797), 1139-1165.

Lucke, J. C., Watson, M., & Herbert, D. (2009). Changing patterns of contraceptive use in Australian women. *Contraception, 80*(6), 533-539.

Lwelamira, J., Mnyamagola, G., & Msaki, M. M. (2012). Knowledge, attitude and practice (KAP) towards modern contraceptives among married women of reproductive Age in mpwapwa district, central Tanzania. *Curr Res J Soc Sci, 4*.

Lwin, M. M., Munsawaengsub, C., & Nanthamongkokchai, S. (2013). Factors influencing family planning practice among reproductive age married women in Hlaing Township, Myanmar. *J Med Assoc Thai, 96*(suppl 5), S98-S106.

Mahmud, M., & Mazza, D. (2010). Preconception care of women with diabetes: a review of current guideline recommendations. *BMC women's health, 10*(1), 5.

Malaysia', M. o. H. (2008). Report on the Confidential Enquiries into Maternal Deaths in Malaysia.

Manaf, R. A., Ismail, I. Z., & Latiff, L. A. (2012). Contraceptive use among women with chronic medical conditions and factors associated with its non-use in Malaysia. *Global journal of health science, 4*(5), 91.

Manandhar, D. S., Osrin, D., Shrestha, B. P., Mesko, N., Morrison, J., Tumbahangphe, K. M., Thapa, B. (2004). Effect of a participatory intervention with women's groups on birth outcomes in Nepal: cluster-randomised controlled trial. *The Lancet, 364*(9438), 970-979.

Manlove, J., Welti, K., Barry, M., Peterson, K., Schelar, E., & Wildsmith, E. (2011). Relationship characteristics and contraceptive use among young adults. *Perspectives on sexual and reproductive health, 43*(2), 119-128.

Mansor, M., Abdullah, K. L., Oo, S. S., Akhtar, K., Jusoh, A. S., Ghazali, S.,Choon, L. C. (2015). The Prevalence of Family Planning Practice and Associated Factors Among Women In Serdang, Selangor. *Malaysian Journal of Public Health Medicine, 15*(3), 147-156.

Marchi, N. M., de Alvarenga, A. T., Osis, M. J., & Bahamondes, L. (2008). Contraceptive methods with male participation: a perspective of Brazilian couples. *Int Nurs Rev, 55*.

Marshall, C., Kandahari, N., & Raine-Bennett, T. Exploring young women's decisional needs for contraceptive method choice: A qualitative study. *Contraception*.

Mazlina, M. N., Ruziaton, H., Nuraini, D., Hairani, I. I., Norizzati, B. I. B., Isa, M., & Mimi, O. (2014). Risk factors for women attending pre-pregnancy screening in selected clinics in Selangor. *Malaysian family physician: the official journal of the Academy of Family Physicians of Malaysia, 9*(3), 20.

McArthur, J. W. (2014). The origins of the millennium development goals. *SAIS Review of International Affairs, 34*(2), 5-24.

McCorry, N., Hughes, C., Spence, D., Holmes, V., & Harper, R. (2012). *Pregnancy Planning and Diabetes: A Qualitative Exploration of Women's Attitudes toward Preconception Care* (Vol. 57).

McIntosh, C. A., & Finkle, J. L. (1995). The Cairo conference on population and development: A new paradigm? *Population and development review*, 223-260.

Mekonnen, A., Sophie, A., Dramaix, M., & Bantayehu, A. (2008). Factors affecting continuity and success of community–based reproductive health service program in rural community of northeast Ethiopia. *East Afr Med J, 85*.

Mekonnen, T. T., Woldeyohannes, S. M., & Yigzaw, T. (2015). Contraceptive use in women with hypertension and diabetes: cross-sectional study in northwest Ethiopia. *International journal of women's health, 7*, 957.

Mekonnen, W., & Worku, A. (2011). Determinants of low family planning use and high unmet need in butajira district. South central Ethiopia. *Reprod Health, 8*.

Miller, G., & Valente, C. (2016). Population policy: Abortion and modern contraception are substitutes. *Demography, 53*(4), 979-1009.

Miller, W., Severy, L., & Pasta, D. (2004). A framework for modeling fertility motivation in couples. *Pop Stud, 58*.

Miyata, H., Okubo, S., Yoshie, S., & Kai, I. (2011). [Reconstituting evaluation methods based on both qualitative and quantitative paradigms]. *Nihon Eiseigaku Zasshi, 66*(1), 83-94.

Mohammed, A., Woldeyohannes, D., Feleke, A., & Megabiaw, B. (2014). Determinants of modern contraceptive utilization among married women of reproductive age group in North Shoa Zone, Amhara Region, Ethiopia. *Reproductive Health, 11*(1), 13.

Mon, M., & Liabsuetrakul, T. (2009). Factors influencing married youths' decisions on contraceptive use in a rural area of Myanmar, Thailand. *Southeast Asian J Trop Med Public Health, 40*.

Mortagy, I., Kielmann, K., Baldeweg, S. E., Modder, J., & Pierce, M. B. (2010). Integrating preconception care for women with diabetes into primary care: a qualitative study. *Br J Gen Pract, 60*(580), 815-821.

Mosadeghrad, A. M. (2014). Factors influencing healthcare service quality. *International Journal of Health Policy and Management, 3*(2), 77-89.

Mosha, I., Ruben, R., & Kakoko, D. (2013). Family planning decisions, perceptions and gender dynamics among couples in Mwanza, Tanzania: a qualitative study. *BMC Public Health, 13*, 523-523.

Mostafa, K., & Aynul, I. (2010). Contraceptive Use: socioeconomic correlates and method choices in rural Bangladesh. *Asia Pac J Public Health, 22*.

Mugisha, J. F., & Reynolds, H. (2008). Provider perspectives on barriers to family planning quality in Uganda: a qualitative study. *Journal of Family Planning and Reproductive Health Care, 34*(1), 37-41.

Muldoon, L. K., Hogg, W. E., & Levitt, M. (2006). Primary care (PC) and primary health care (PHC): what is the difference? *Canadian Journal of Public Health/Revue Canadienne de Sante'e Publique*, 409-411.

Mullany, B., Hindin, M., & Becker, S. (2005). Can women's autonomy impede male involvement in pregnant health in Katmandu, Nepal? *Soc Sci Med, 61*.

Mulu, W., & Tilahun, H. (2009). Modeling trends of health and health related indicators in Ethiopia (1995–2008): a time-series study. *Bio-Med Cent Health Res Policy Syst, 7*.

Murphy, H. R., Temple, R. C., Ball, V. E., Roland, J. M., Steel, S., Zill-E-Huma, R., on behalf of the East Anglia Study group for Improving Pregnancy Outcomes in women with, D. (2010). Personal experiences of women with diabetes who do not attend pre-pregnancy care. *Diabetic Medicine, 27*(1), 92-100.

Mutombo, N., Bakibinga, P., Mukiira, C., & Kamande, E. (2014). Benefits of family planning: an assessment of women's knowledge in rural Western Kenya. *BMJ open, 4*(3), e004643.

Mwageni, E. A., Ankomah, A., & Powell, R. A. (1998). Attitudes of men towards family planning in Mbeya region, Tanzania: a rural-urban comparison of qualitative data. *Journal of biosocial science, 30*(3), 381-392.

Nachum, Z., Ben-Shlomo, I., Weiner, E., Ben-Ami, M., & Shalev, E. (2001). Diabetes in pregnancy: efficacy and cost of hospitalization as compared with ambulatory management--a prospective controlled study. *The Israel Medical Association journal: IMAJ, 3*(12), 915-919.

Najafi, F., Rahman, H. A., & Juni, M. H. (2011). Barriers to modern contraceptive practices among selected married women in a public university in Malaysia. *Global Journal of Health Science, 3*(2), 50.

Najafi-Sharjabad, F., Hejar Abdul Rahman, M. H., & Yahya, S. Z. S. (2014). Spousal communication on family planning and perceived social support for contraceptive practices in a sample of Malaysian women. *Iranian journal of nursing and midwifery research, 19*(7 Suppl1), S19.

Najafi-Sharjabad, F., Yahya, S. Z. S., Hejar Abdul Rahman, M. H., & Manaf, R. A. (2013). Barriers of modern contraceptive practices among Asian women: a mini literature review. *Global journal of health science, 5*(5), 181.

Najimudeen, M., & Sachchithanantham, K. (2017). An insight into low contraceptive prevalence in Malaysia and its probable consequences. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 3*(3), 493-496.

Nalliah, S. (2015). Strategic Interventions in the Management of Gestational Diabetes to Reduce Type 2 Diabetes Mellitus in Women in Malaysia. *Med J Malaysia, 70*(4), 211.

Nalwadda, G., Mirembe, F., Byamugisha, J., & Faxelid, E. (2010). Persitstent high fertility in Uganda: young people recount obstacles and enabling factors to use of contraceptives. *BMC Public Health, 10*.

Nansseu, J. R. N., Nchinda, E. C., Katte, J.-C., Nchagnouot, F. M., & Nguetsa, G. D. (2015). Assessing the knowledge, attitude and practice of family planning among women living in the Mbouda health district, Cameroon. *Reproductive Health, 12*(1), 92.

National Health and Morbidity Survey. (2015). (M. F. M. Y. Tahir Aris, Abdul Aiman Abd Ghani, Noor Ani Ahmad, Mohd Azahadi Omar, Tee Guat Hiong, Nur Hazwani Mohd Hasri, Nur Fadzilla Mohd Radzi, Nur Syazwani Manan, Nurul Aini Kamaruddin Ed. Vol. 2).

Nekui, N. S., Kazemi, A., & Emami, S. D. (2008). Preconceptional care for diabetes: health care providers' experiences on how the patients face disease and pregnancy. *Iranian Journal of Nursing and Midwifery Research, 12*(4).

Nelson, A. L., & Rezvan, A. (2012). A pilot study of women's knowledge of pregnancy health risks: implications for contraception. *Contraception, 85*(1), 78-82.

Nikolov, A., Dimitrov, A., Kolarov, G., Todarova, K., & Mekhandzhiev, T. (2005). Contraception in women with diabetes mellitus. *Akusherstvo i ginekologiia, 44*(5), 47-52.

Noh, K. M. (2011). Primary health care reform in 1CARE for 1Malaysia. *International Journal of Public Health Research Special* (2011), 50-56.

Norris, S. A., Ho, J. C. C., Rashed, A. A., Vinding, V., Skau, J. K., Biesma, R., Matzen, P. (2016). Pre-pregnancy community-based intervention for couples in Malaysia: application of intervention mapping. *BMC public health, 16*(1), 1167.

Ntozi, J. P., & Odwee, J. O. (1995). *High fertility in rural Uganda: the role of socioeconomic and biological factors, 3: xi*. Kampala, Uganda: Foundation Publishers.

Ochako, R., Mbondo, M., Aloo, S., Kaimenyi, S., Thompson, R., Temmerman, M., & Kays, M. (2015). Barriers to modern contraceptive methods uptake among young women in Kenya: a qualitative study. *BMC public health, 15*(1), 118.

Oliver, C. (2012). The relationship between symbolic interactionism and interpretive description. *Qualitative Health Research, 22*(3), 409-415.

Olugbenga-Bello, A., Abodunrin, O., & Adeomi, A. (2011). Contraceptive practices among women in rural communities in south-western Nigeria. *Glob J Med Res, 11*.

Onyango, M. A., Owoko, S., & Oguttu, M. (2010). Factors that influence male involvement in sexual and reproductive health in western Kenya: a qualitative study. *Afr J Reprod Health, 14*.

Oyediran, K., & Isiugo-Abanihe, U. (2002). Husband-wife communication and couple's fertility desires among the Yoruba of Nigeria. *Afr Pop Stud, 17*.

Pandey, S., Karki, S., & Pradhan, A. (2009). Practice of contraceptives. *J Inst Med, 31*.

Patton, M. (1990). *Qualitative evaluation and research methods*.

Pazol, K., Zapata, L. B., Tregear, S. J., Mautone-Smith, N., & Gavin, L. E. (2015). Impact of contraceptive education on contraceptive knowledge and decision making: a systematic review. *American Journal of Preventive Medicine, 49*(2), S46-S56.

Perinatal Care Manual. (2013). (3rd edition ed.): Division of Family Health Development, MOH Malaysia.

Perritt, J. B., Burke, A., Jamshidli, R., Wang, J., & Fox, M. (2013). Contraception counseling, pregnancy intention and contraception use in women with medical problems: an analysis of data from the Maryland Pregnancy Risk Assessment Monitoring System (PRAMS). *Contraception, 88*(2), 263-268.

Petro-Nustas, W., & Al-Qutob, R. (2002). Jordanian men's attitudes and views of birth-spacing and contraceptive use (A qualitative approach). *Health Care Women Int, 23*.

Quek, D. (2009). *The Malaysian healthcare system: a review.* Paper presented at the Intensive workshop on health systems in transition: 29-30 April 2009; Kuala Lumpur.

Radulović, O., Šagrić, Č., Višnjić, A., Tasić, A., & Marković, R. (2006). The influence of education level on family planning. *Medicine and Biology, 13*(1), 58-64.

Ramerez-Ferrero, E., & Lusti-Narasimhan, M. (2012). The role of men as partners in the prevention of mothers-to-child transmission of HIV and in the promotion of sexual and reproductive health. *Reprod Health matters, 20*.

Ramli, A. S., & Taher, S. (2008). Managing chronic diseases in the Malaysian primary health care–a need for change. *Malaysian family physician: the official journal of the Academy of Family Physicians of Malaysia, 3*(1), 7.

Ravichandran, J., & Ravindran, J. (2014). Lessons from the confidential enquiry into maternal deaths, Malaysia. *BJOG: An International Journal of Obstetrics & Gynaecology, 121*(s4), 47-52.

Reis, M., Ramiro, L., de Matos, M. G., & Diniz, J. A. (2011). The effects of sex education in promoting sexual and reproductive health in Portuguese university students. *Procedia-Social and Behavioral Sciences, 29*, 477-485.

Rosliza, A., & Majdah, M. (2010). Male participation and sharing of responsibility in strengthening family planning activities in Malaysia. *Malays J Pub Healt Med, 10*.

Rossier, C., & Hellen, J. (2014). Traditional birthspacing practices and uptake of family planning during the postpartum period in Ouagadougou: qualitative results. *International Perspectives on Sexual and Reproductive Health, 40*(2), 87-94.

Rothman, A. A., & Wagner, E. H. (2003). Chronic illness management: what is the role of primary care? *Annals of Internal Medicine, 138*(3), 256-261.

Safran, D. G. (2003). Defining the future of primary care: what can we learn from patients? *Annals of Internal Medicine, 138*(3), 248-255.

Saha, K., Singh, N., Saha, U., & Roy, J. (2007). Male involvement in reproductive health among scheduled tribe: experience from Khairwars of central India. *Rur Rem Healt, 7*.

Sandelowski, M. (1995). Sample-Size in Qualitative Research. *Research in Nursing & Health, 18*(2), 179-183.

Sandelowski, M. (1998). The call to experts in qualitative research. *Research in Nursing & Health, 21*(5), 467-471.

Sandelowski, M. (1998). Writing a good read: Strategies for re-presenting qualitative data. *Research in Nursing & Health, 21*(4), 375-382.

Sandelowski, M. (1999). Time and qualitative research. *Research in Nursing & Health, 22*(1), 79-87.

Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health, 23*(4), 334-340.

Sandelowski, M. (2001). Real qualitative researchers do not count: The use of numbers in qualitative research. *Research in Nursing & Health, 24*(3), 230-240.

Sandelowski, M. (2004). Using qualitative research. *Qualitative Health Research, 14*(10), 1366-1386.

Sandelowski, M. (2005). Interactive qualitative analysis: A systems method for qualitative research. *Qualitative Health Research, 15*(5), 719-720.

Sandelowski, M. (2010). What's in a Name? Qualitative Description Revisited. *Research in Nursing & Health, 33*(1), 77-84.

Sandelowski, M., & Barroso, J. (2003). Toward a metasynthesis of qualitative findings on motherhood in HIV-positive women. *Research in Nursing & Health, 26*(2), 153-170.

Sandelowski, M., & Barroso, J. (2003). Writing the proposal for a qualitative research methodology project. *Qualitative Health Research, 13*(6), 781-820.

Sandelowski, M. J. (2008). Justifying qualitative research. *Research in Nursing & Health, 31*(3), 193-195.

Save, D., Erbaydar, T., Kalaca, S., Harmanci, S., Cali, S., & Karavus, M. (2004). Resistance against contraception or medical contraceptive methods: a qualitative study on women and men in Instanbul. *Eur J Contracept Reprod Health Care, 9*.

Schuler, S. R., Rottach, E., & Mukiri, P. (2011). Gender norms and family planning decision-making in Tanzania: a qualitative study. *Journal of Public Health in Africa, 2*(2).

Schwarz, E. B., Braughton, M. Y., Riedel, J. C., Cohen, S., Logan, J., Howell, M., & Thiel de Bocanegra, H. (2017). Postpartum care and contraception provided to women with gestational and preconception diabetes in California's Medicaid program. *Contraception*.

Schwarz, E. B., Maselli, J., & Gonzales, R. (2006). Contraceptive counseling of diabetic women of reproductive age. *Obstetrics & Gynecology, 107*(5), 1070-1074.

Schwarz, E. B., Postlethwaite, D., Hung, Y.-Y., Lantzman, E., Armstrong, M. A., & Horberg, M. A. (2012). Provision of contraceptive services to women with diabetes mellitus. *Journal of General Internal Medicine, 27*(2), 196-201.

Seyedfatemi, N., Salsali, M., Rezaee, N., & Rahnavard, Z. (2014). Women's Health Concept: A Meta-Synthesis Study. *Iranian Journal of Public Health, 43*(10), 1335-1344.

Shafei, M., Shah, M., & Tengku Ismail, T. (2012). Knowledge and attitude towards family planning practice and prevalence of short birth spacing among residents of suburban area in Terengganu, Malaysia. *Journal of Community Medicine & Health Education, 2*, 2161-0711.1000180.

Shahjahan, M., Mumu, S., Afroz, A., Chowdhury, H., Kabir, R., & Ahmed, K. (2013). Determinants of male participation in reproductive healthcare services: a cross-sectional study. *Reprod Health, 10*.

Sharan, M., & Valente, T. (2002). Spousal communication and family planning adoption: effects of a radio drama serial in Nepal. *Int Fam Plan Perspec, 28*.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for information, 22*(2), 63-75.

Shepherd, H. L., Barratt, A., Jones, A., Bateson, D., Carey, K., Trevena, L. J. Epstein, R. M. (2016). Can consumers learn to ask three questions to improve shared decision making? A feasibility study of the ASK (AskShareKnow) Patient–Clinician Communication Model® intervention in a primary health-care setting. *Health Expectations, 19*(5), 1160-1168.

Silverman, D. (2013). *Doing qualitative research: A practical handbook*: SAGE Publications Limited.

Simmons, M., Guerra-Reyes, L., Meyerson, B., Adams, K., & Sanders, S. Exploring Provider Perspectives as Barriers and Facilitators to Implementation of Quality Family Planning Recommendations at Title X Clinics: A Qualitative Study. *Women's Health Issues, 26*(6), 628-633.

Soldan, V. (2004). How family planning ideas are spread with social groups in rural Malawi. *Stud Family Plann, 35*.

Steel, A., Lucke, J., & Adams, J. (2015). The prevalence and nature of the use of preconception services by women with chronic health conditions: an integrative review. *BMC Women's Health, 15*(1), 14.

Stenhouse, E. (2014). Pre-conceptual care for women with pre-existing diabetes. *The journal of family health care, 24*(6), 34-37.

Sternberg, P., & Hubley, J. (2004). Evaluating men's involvement as a strategy in sexual and reproductive health program. *Health Promo Int, 19*.

Stover, J., & Ross, J. (2010). How increased contraceptive use has reduced maternal mortality. *Matern Child Healt J, 14*.

Sword, W., Heaman, M. I., Brooks, S., Tough, S., Janssen, P. A., Young, D.Hutton, E. (2012). Women's and care providers' perspectives of quality prenatal care: a qualitative descriptive study. *BMC Pregnancy and Childbirth, 12*, 29-29.

T. Beekle rgn, b. m. A., & McCabe, C. (2006). *Awareness and determinants of family planning practice in Jimma, Ethiopia* (Vol. 53).

T. Swamy, H., M, B., Kumar B. S, N., & Somanna, S. (2017). *A qualitative study on determinants of choice of contraceptives in a rural* (Vol. 4).

Tafese, F., Woldie, M., & Megerssa, B. (2013). Quality of family planning services in primary health centers of Jimma Zone, Southwest Ethiopia. *Ethiopian journal of health sciences, 23*(3), 245-254.

Tajuddin, S. K. A., & Shamsuddin, K. (2015). Decision Making Behaviour Related to Wife's Reproductive Health in Bidayuh Men in Rural Part of East Malaysia.

Talib, R. A. (2016). Exploring the Determinant of Pre-Pregnancy Care Services Usage among Reproductive Ages Women in Kedah, Malaysia. *International Journal of Public Health Research, 6*(2), 719-726.

Taylor, S. J., Bogdan, R., & DeVault, M. (2015). *Introduction to qualitative research methods: A guidebook and resource*: John Wiley & Sons.

Temple, R. C., Aldridge, V. J., & Murphy, H. R. (2006). Prepregnancy care and pregnancy outcomes in women with type 1 diabetes. *Diabetes Care, 29*(8), 1744-1749.

Terefe, A., & Larson, C. P. (1993). Modern contraception use in Ethiopia: does involving husbands make a difference? *American Journal of Public Health, 83*(11), 1567-1571.

Tessema, G. A., Gomersall, J. S., Mahmood, M. A., & Laurence, C. O. (2016). Factors Determining Quality of Care in Family Planning Services in Africa: A Systematic Review of Mixed Evidence. *PloS one, 11*(11), e0165627.

Thomas, S., Beh, L., & Nordin, R. B. (2011). Health care delivery in Malaysia: changes, challenges and champions. *Journal of Public Health in Africa, 2*(2).

Thorne, S., Jensen, L., Kearney, M. H., Noblit, G., & Sandelowski, M. (2004). Qualitative metasynthesis: Reflections on methodological orientation and ideological agenda. *Qualitative Health Research, 14*(10), 1342-1365.

Tilahun, T., Coene, G., Luchters, S., Kassahun, W., Leye, E., Temmerman, M., & Degomme, O. (2013). Family planning knowledge, attitude and practice among married couples in Jimma Zone, Ethiopia. *PloS one, 8*(4), e61335.

Timothy, C., Nelson, W., & Tom, K. (2011). Contraceptive Use among women of reproductive Age in Kenya's city slums. *Int J Bus Soc Sci, 2*.

Tolley, E., Loza, S., Kafafi, L., & Cummings, S. (2005). The impact of menstrual side effects on contraceptive discontinuation: findings from a longitudinal study in Cairo, Egypt. *International Family Planning Perspectives*, 15-23.

Torres, A., & Forrest, J. D. (1983). The costs of contraception. *Family planning perspectives, 15*(2), 70-72.

Travis, P., Bennett, S., Haines, A., Pang, T., Bhutta, Z., Hyder, A. A.Evans, T. (2004). Overcoming health-systems constraints to achieve the Millennium Development Goals. *The Lancet, 364*(9437), 900-906.

Tsui, A., McDonald-Mosely, R., & Burke, A. (2010). Family planning and the burden of unintended pregnancies. *Epidemiol Rev, 32*.

Tuloro, T., Deressa, W., Ali, A., & Gail, D. G. (2009). The role of men in contraceptive use and fertility preference in Hossana Town, southern Ethiopia. *Ethiop J Health Dev, 20*.

UNFPA. (2012). *Ten Good Practices in Essential Supplies for Family Planning and Maternal Health* (pp. 36). Retrieved from:http://www.unfpa.org/publications/ten-good-practices-essential-supplies-family-planning-and-maternal-health

Vahratian, A., Barber, J. S., Lawrence, J. M., & Kim, C. (2009). Family-Planning Practices among Women with Diabetes and Overweight and Obese Women in the 2002 National Survey for Family Growth. *Diabetes Care, 32*(6), 1026-1031.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences, 15*(3), 398-405.

Wang, C. C., Vittinghoff, E., Hua, L. S., Yun, W. H., & Rong, Z. M. (1998). Reducing pregnancy and induced abortion rates in China: family planning with husband participation. *American Journal of Public Health, 88*(4), 646-648.

Warren, R. C., & Ross, J. A. (2007). The global family planning revolution. *Washington, DC: The World Bank*.

Weisman, C. S., Lehman, E. B., Legro, R. S., Velott, D. L., & Chuang, C. H. (2015). How do pregnancy intentions affect contraceptive choices when cost is not a factor? A study of privately insured women. *Contraception, 92*(5), 501-507.

Westoff, C. F. (2001). DHS Comparative Reports No. 1 *Unmet need at the end of the century*. Calverton, Maryland: ORC Macro

Westoff, C. F., & Rodriguez, G. (1995). The mass media and family planning in Kenya. *International family planning perspectives*, 26-36.

White, F. (2015). Primary health care and public health: foundations of universal health systems. *Medical Principles and Practice, 24*(2), 103-116.

Whiting, D. R., Guariguata, L., Weil, C., & Shaw, J. (2011). IDF diabetes atlas: global estimates of the prevalence of diabetes for 2011 and 2030. *Diabetes research and clinical practice, 94*(3), 311-321.

WHO. (2006). United Nations Population Fund. *Preparing for the Introduction of HPV Vaccines: Policy and Programme Guidance for Countries. Geneva (Switzerland): WHO*.

WHO. (2015). *World report on ageing and health*: World Health Organization, Volume 5: A Glossary of Terms for Community Health Care and Services for Older Persons.

WHO. (2018). Expanding access to contraception. From retrieved: http://www.who.int/reproductivehealth/topics/family_planning/mec5th-edition/en/

Wild, S. H., Roglic, G., Green, A., Sicree, R., & King, H. (2004). Global prevalence of diabetes: estimates for the year 2000 and projections for 2030: response to Rathman and Giani. *Diabetes care, 27*(10), 2569-2569.

Williams, J. (2003). Overview of the care of pregnant women with pre-existing diabetes. *Journal of Diabetes Nursing, 7*(1), 12-27.

Williamson, L. M., Parkes, A., Wight, D., Petticrew, M., & Hart, G. J. (2009). Limits to modern contraceptive use among young women in developing countries: a systematic review of qualitative research. *Reproductive Health, 6*, 3-3.

Wong, L. P. (2008). Data Analysis in Qualitative Research: A Brief Guide to Using Nvivo. *Malaysian Family Physician: the Official Journal of the Academy of Family Physicians of Malaysia, 3*(1), 14-20.

Wulifan, J. K., Brenner, S., Jahn, A., & De Allegri, M. (2016). A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries. *BMC Women's Health, 16*(1), 2.

Wyatt, K. D., Anderson, R. T., Creedon, D., Montori, V. M., Bachman, J., Erwin, P., & LeBlanc, A. (2014). Women's values in contraceptive choice: a systematic review of relevant attributes included in decision aids. *BMC Women's Health, 14*(1), 28.

Yarnall, K. S., Pollak, K. I., Østbye, T., Krause, K. M., & Michener, J. L. (2003). Primary care: is there enough time for prevention? *American journal of public health, 93*(4), 635-641.

Yeakey, M. P., Muntifering, C. J., Ramachandran, D. V., Myint, Y., Creanga, A. A., & Tsui, A. O. (2009). How contraceptive use affects birth intervals: results of a literature review. *Stud Fam Plann, 40*.

Yeatman, S. E., & Trinitapoli, J. (2008). Beyond denomination: The relationship between religion and family planning in rural Malawi. *Demographic research, 19*(55), 1851.

Yehuda, I. (2016). Implementation of Preconception Care for Women with Diabetes. *Diabetes Spectrum: A Publication of the American Diabetes Association, 29*(2), 105-114.

Yu, C. P., Whynes, D. K., & Sach, T. H. (2008). Equity in health care financing: The case of Malaysia. *International Journal for Equity In Health, 7*(1), 15.

Yue, K., O'Donnel, C., & Sparks, P. L. (2010). The effect of spousal communication on contraceptive use in Central Terai, Nepal. *Patient Educ Couns, 81*.

Zafar, S., & Shaikh, B. T. (2014). 'Only systems thinking can improve family planning program in Pakistan': A descriptive qualitative study. *International Journal of Health Policy and Management, 3*(7), 393.

Zapata, L. B., Tregear, S. J., Curtis, K. M., Tiller, M., Pazol, K., Mautone-Smith, N., & Gavin, L. E. (2015). Impact of contraceptive counseling in clinical settings: a systematic review. *American Journal of Preventive Medicine, 49*(2), S31-S45.