KNOWLEDGE, ATTITUDE AND PRACTICES OF PROPHETIC DIET (DATES) AMONG ISLAMIC AND HEALTH SCIENCES STUDENT BACKGROUND

by

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Dissertation submitted in partial fulfillment of the requirements for the degree of Bachelor of Health Sciences (Honour) (Nutrition)

June 2018

CERTIFICATE

This is to certify that the dissertation entitled Knowledge, Attitude and Practices of Prophetic Diet (Dates) Among Islamic and Health Sciences Student Background is the bona fide record of research work done by Nor Faizatul Najwa Binti Abdullah. During the period of January 2018 to June 2018 under my supervision. I have read this dissertation and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfillment for the degree of Bachelor of Health Science (Honours) (Nutrition).

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DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated and duly acknowledged. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia the right to use the dissertation for teaching, research and promotion purpose.

Nor Faizatul Najwa Binti Abdullah

Date..3/7/2018.....

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LIST OF ABBREVIATIONS

KAP. Knowledge, Attitude and Practice

WHO. World Health Organization

IIUM. International Islamic University Malaysia

KIAS. Kolej Islam Antarabangsa Sultan Ismail Petra

USM. Universiti Sains Malaysia

UMS. Universiti Malaysia Sabah

BMI. Body Mass Index

PENGETAHUAN, SIKAP DAN AMALAN DIET RASULULLAH SAW (KURMA) DALAM KALANGAN PELAJAR BERLATAR BELAKANG ISLAM DAN SAINS KESIHATAN

ABSTRAK

Tujuan kajian ini dijalankan adalah untuk mengkaji tahap pengetahuan, sikap dan amalan (KAP) terhadap buah kurma dalam kalangan pelajar tahun akhir KIAS (berlatar belakang Islam) dan pelajar tahun akhir PPSK (USM) (berlatar belakang Sains Kesihatan). Seramai 207 responden dari USM (dengan purata umur: 23.14 ± 0.77) dan 96 responden dari KIAS (dengan purata umur: 24.25 ± 1.97) telah dipilih dalam kajian yang menggunakan teknik persampelan purposif. Borang soal selidik yang terdiri daripada maklumat sosiodemografi, soalan KAP dan ciri-ciri fizikal telah digunakan untuk menilai data di antara pelajar berlatar belakang sains dan Islam ini. Keputusan kajian telah menunjukkan bahawa responden berlatar belakang sains kesihatan mencatatkan peratusan berat badan normal yang lebih tinggi berbanding dengan responden berlatar belakang Islam yang masing-masing adalah 44.0% dan 36.5%. Responden berlatar belakang Islam lebih ramai mengalami masalah kurang berat badan (35.4%) berbanding responden berlatar belakang sains kesihatan iaitu seramai 27.5%. Selain itu, responden berlatar belakang sains kesihatan juga mempunyai peratusan lebih berat badan (21.7%) yang tinggi berbanding dengan responden berlatar belakang Islam (14.6%). Bagi obes, responden berlatar belakang Islam mencatat peratusan yang lebih tinggi berbanding responden berlatar belakang sains kesihatan iaitu masing-masing 13.5% dan 6.8%. Berdasarkan keputusan kajian, seramai 88.5% daripada responden berlatar belakang Islam dari KIAS mempunyai pengetahuan yang tinggi terhadap buah kurma berbanding dengan pelajar berlatar belakang sains kesihatan dari USM iaitu 59.4%. Untuk tahap sikap terhadap kurma dalam kalangan dua kumpulan, kajian ini mendapati

65.6% responden berlatar belakang Islam mempunyai sikap yang tinggi terhadap kurma berbanding 32.4% responden berlatar belakang sains kesihatan. Majoriti responden berlatar belakang sains kesihatan (96.1%) dan Islam (94.8%) mengambil kurma pada bulan Ramadhan yang lepas. Walau bagaimanapun dalam bulan lain selain bulan Ramadhan, seramai 27.1% dan 14.6% responden berlatar belakang sains dan Islam masing-masing tidak pernah mengambil kurma. Berdasarkan keseluruhan data yang diperolehi dalam kajian ini, secara keseluruhannya pelajar dari latar belakang Islam (KIAS) mempunyai tahap pengetahuan, sikap dan amalan yang baik berbanding pelajar dari latar belakang Sains Kesihatan (USM).

KNOWLEDGE, ATTITUDE AND PRACTICES OF PROPHETIC DIET (DATES) AMONG ISLAMIC AND HEALTH SCIENCES STUDENT BACKGROUND

ABSTRACT

The purpose of this cross-sectional study was to investigate the level of Knowledge, Attitude and Practice (KAP) on date fruit among final year degree KIAS students (Islamic background) and final year PPSK USM students (Health Sciences background). A total of 207 respondents from USM (with mean age: 23.14 ± 0.77) and 96 respondents from KIAS (with mean age: 24.25 ± 1.97) were selected in this study that used purposive sampling technique. A structured questionnaire consisted of sociodemographic information, KAP and physical characteristics question used to assess the data among Health Sciences background and Islamic background. Result from this study showed respondents from Health Sciences background recorded higher percentage of normal body weight compared to Islamic background respondents which is 44.0% and 36.5% respectively. However, respondents from Islamic background have higher percentage of underweight (35.4%) compared to respondents from Health Sciences background only 27.5%. Besides, respondents from Health Sciences background also have higher percentage of overweight (21.7%) compare to Islamic background respondents which is 14.6%. For obese, Islamic background respondents recorded higher percentage compare to Health Sciences background which is 13.5% and 6.8% respectively. Result from this study showed that 88.5% of the respondents from Islamic background (KIAS) have high level of knowledge on dates compare to Health Sciences background (USM) which is only 59.4%. For level of attitude on date fruit among this two population, study found that 65.6% of the respondents from Islamic background have high level of attitude toward dates compared to 32.4% of respondents from Health

Sciences background. Majority of the respondents from Health Sciences background (96.1%) and Islamic background (94.8%) consumed dates during the last Ramadhan. However during outside Ramadhan, 27.1% and 14.6% respondents from Health Sciences background and Islamic background respectively never consumed dates. From overall data in this study, it seems that the students from Islamic background (KIAS) have good level of knowledge, attitude and practices compare to Health Sciences background (USM).

CHAPTER 1: INTRODUCTION

1.1 Background of study

Prophetic diet / Prophetic foods are foods that have been appraised in the Al-Quran and Hadith and had been proven to have many benefits. These food also of recommendation by Prophet Muhammad S.A.W. for a better and healthy living among Muslims (Hashman, 2011). In Islam, there are many guidance from Al-Quran that teach their believers to keep their body remain in healthy condition. It is also needed to maintain the human soul and spirit in healthy (Mohd *et. al.,* 2013). Foods is one of the important basic need in daily life for all human that played major significance in all religious faiths including Islam, christianity, judaism, buddhism and hinduism.

Foods choices, beliefs, culture, lifestyle and knowledge that every person have will influence the eating habits of a person (Monneuse *et al.,*1997). In Islam, the consumption of foods rich in nutrients and can give benefit to one's health and had been mentioned in the Holy Quran, Surah Al-Baqarah, verse 168 *"O mankind, eat from whatever is on earth [that is] lawful and good and do not follow the footsteps of Satan. Indeed, he is to you a clear enemy"* (Nur *et. al.,* 2016). According to Qur'an, the fruits like grape, date, fig, olive and pomegranate are gifts fruits of God. In addition, all these fruits contain high amount minerals, vitamins and enzymes. Therefore, they are easily digested and act as cleansing agent on the blood and also to digestive tract. Persons who are maintain on this natural diet will always enjoy a good health. Other than that, various diseases that caused by n.d).

Besides, fruits also can be eaten raw or as fresh juice. It can be an excellent ways to retain and balance the moisture level in human body. In addition, the low level of sodium contain in fruits plays an important role for people who want to take salt-free diet. Dry fruits like raisin, dates and apricots contain calcium and iron. Calcium is essential for bones to become more strength and iron aid in maintaining good blood. For health, people should eat one or two fruits a day as one of the steps to clean digestive tract and aids easy bowel action (Hopkins, 2006). Since dates is considered as one of the fruits, so its consumption can give many benefits and also can help people in reducing all the risk stated above.

The date fruit, scientifically called "*Phoenix dactylifera*" is a fruit that contains a high levels of carbohydrate, minerals, proteins, and vitamins also high in dietary fibre. In addition dates also contains both saturated and unsaturated fatty acids in their seed and the flesh. Researcher found that percentage of fatty acids varies from another. Their study show that seeds of dates contain 14 types of fatty acids and only eight of these fatty acid exist in very low concentration in the flesh. Dates provide various benefits of good nutrition especially for pregnant women. It is part of a well-balanced diet for them since contribute significantly to a healthy pregnancy by preventing anaemia, reducing nausea, controlling blood pressure, regulating blood sugar levels, helping to restore depleted calcium, expelling toxins, and increasing strength and immune resistance (Al-Shahib and Marshall 2003).

In medical aspect, oxytocin is used to control postpartum bleeding or also known as bleeding after delivery. Based on previous non-randomised clinical trial, researchers were

compared the efficacy of date fruit and oxytocin after placenta delivery. Based on the result, the ingestion of date fruit is significantly reduced the amount of bleeding compared to oxytocin in the first hour following placental delivery, it is because due to the presence of compounds in date fruit that mimicked the action of oxytocin (Khadem *et. al.,* 2007).

Dates is one of fruits that are rich in certain nutrients and provide a good source of rapid energy due to their high carbohydrate content which is 70–80%. Most of the carbohydrates in dates are in the form of fructose and glucose. The simple form of sugar can easily absorbed by the human body (Al-Farsi *et. al.,* 2005; Myhara *et al.,* 1999). Dates should not be consumed during Ramadhan only but all year round as dates are fat-free and cholesterol-free and can also boost high energy (Mohd *et al.,* 2013). Besides, dates are also proven to have a protective effect in prevent hypertension (Al-Farsi *et. al.,* 2005)

To best of my knowledge, there were only two studies had carried out in this country that focusing on Prophetic diet. The first study was done by Mohd *et al.,* (2013) on International Islamic University Malaysia (IIUM) students to measure their awareness about practising the Prophetic diet. The result of this study showed that most of the student practised Prophetic diet in their everyday life. Although most of IIUM students practised the diet, but the level of awareness was still in moderate (Mohd *et al.,* 2013).

The other study was done by Nur *et al.,* (2016) involved 40 respondents, conducted in Kampung Dato' Ahmad Razali, Selangor to determine the practice and consumption of

dates among small samples of Muslim Malaysian village residents which actually reflects their sociocultural acceptance towards prophetic foods. Based on the result, researcher found that the practice of dates is still low among the residents because of several reasons. Among the reasons why residents not consumes dates because of forgetfulness, not a habit and less of awareness (Nur *et al.,* 2016).

In this current study, two populations which is final year students from Kolej Islam Antarabangsa Sultan Ismail Petra (KIAS) and Pusat Pengajian Sains Kesihatan Universiti Sains Malaysia Kampus Kesihatan (USMKK) were choosen by using purposive sampling. The aim of the study was to compare whether any difference in term of knowledge, attitude and practice between Health Sciences background (USM) and Islamic background (KIAS).

1.2 Problem statement

Due to the lack of research conducted on this topic, the data obtained is very less and limited. One of the previous study by Nur *et al.,* (2016), researchers have conducted a KAP study about consumption of dates on residents in Kampung Dato' Ahmad Razali, Selangor. On that study, researchers were highlight that despite increasing demands on prophetic diet nowadays, there are very minimal studies already done in Malaysia in order to determine the sociocultural acceptance towards prophetic food among Malaysian especially among students.

Besides, another study conducted on IIUM students to measure their awareness about practising the Prophetic diet. However, the study just identify the perception of student about Prophetic diet not on KAP. For KAP data on consumption of dates among students, it is still under-studied until now. Furthermore, there has been no study of comparing KAP on the date consumption among students who are from Islamic backgrounds and students from health science background.

Despite the increasing demands of prophetic diet products in Malaysia, but the practice on that diet is still in low level even though there are many nourishment that can be obtained from the food. There are still less studies that have been done in Malaysia to study and determine the actual practice of prophetic diet among Muslim Malaysian communities. (Nur *et al.,* 2016). In Malaysia, knowledge of the health benefits of prophetic diet such as dates and goat's milk is still not fully understood by the community (Mohd *et al.,* 2016)

Nowadays, there are many researches have shown numerous therapeutic effects of prophetic diet such as dates, olive oils and honey. The health benefits that all people can get from these foods have been recorded in Al-Quran and Hadith. The good outcomes and health beneficial effects that shown in prophetic foods have significantly proved that prophetic diet can be practiced by everyone regardless of their ethnicity, religions or their beliefs (Nur *et al.*, 2016).

1.3 Significance of the study

The findings of this study can be used as a reference by others researchers to conduct research on prophetic food (dates) in large scale study or in population in order to promote a better healthy eating practice through consumption of prophetic diets (Nur *et al.*, 2016). KAP study on prophetic diet among Islamic and Health Sciences students is important because they should be a reference persons on knowledge of prophetic diet in communities. This study also can increase the awareness among Malaysian about the benefit they can get when commit with prophetic diet in daily life.

1.4 Research objectives

1.4.1 General objective

To assess physical characteristics and knowledge, attitude and practices (KAP) on dates used among final year students from two different studies backgrounds namely Health Sciences background (USM) and Islamic background (KIAS).

1.4.2 Specific objectives

1. To compare the physical characteristics (Body weight, height and BMI) between final year degree KIAS students (Islamic background) and final year PPSK USM students (Health Sciences background).

2. To investigate the level of KAP on dates among final year degree KIAS students (Islamic background) and final year PPSK USM students (Health Sciences background).

3. To compare the KAP on dates between final year degree KIAS students (Islamic background) with final year PPSK USM students (Health Sciences background).

1.5 Research hypothesis

H_0: There is no difference of physical characteristics between final year degree KIAS students (Islamic background) and final year PPSK USM students (Health Sciences background).

1. H_A: There is difference of physical characteristics between final year degree KIAS students (Islamic background) and final year PPSK USM students (Health Sciences background).

2. H_0: There is no difference level of KAP on dates among final year degree KIAS students (Islamic background) and final year PPSK USM students (Health Sciences background).

3. H_A: There is difference level of KAP on dates among final year degree KIAS students (Islamic background) and final year PPSK USM students (Health Sciences background).

1.6 Variables of the study:

1.6. 1 Independent variables

- Socio-demographic data such as age, gender, race, marital status, student courses, types of scholarship and loan received family structure, amount of scholarship and loans get, rate of loan and scholarships received and amount of households.

- Background of courses with Islamic background which is Degree in Usuluddin and Degree in Syariah.

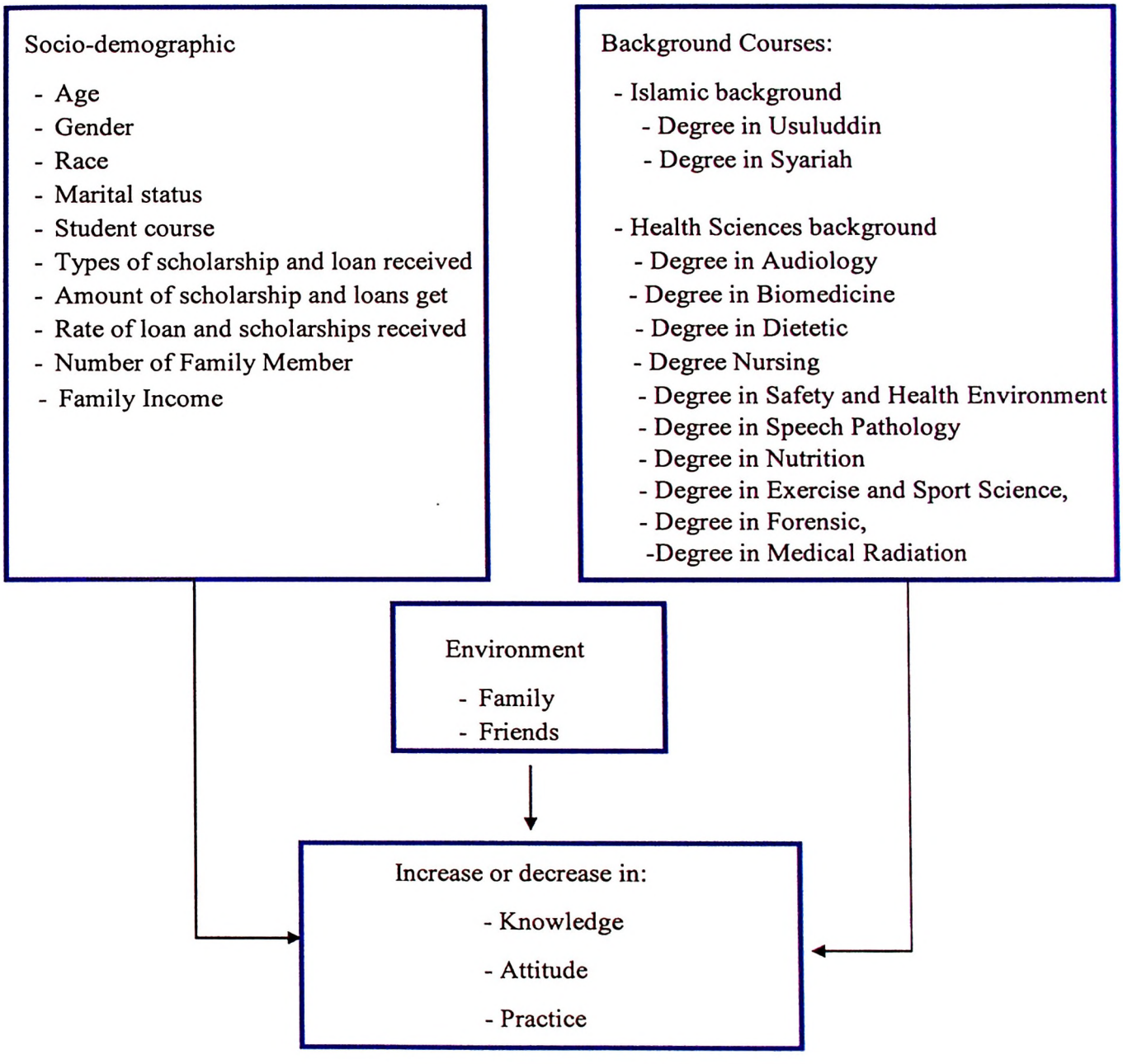
- Background of courses with Health Sciences background which is Degree in Audiology, Degree in Biomedicine, Degree in Dietetic, Degree Nursing, Degree in Safety and Health Environment, Degree in Speech Pathology, Degree in Nutrition, Degree in Exercise and Sport Science, Degree in Forensic, Degree in Medical Radiation.

- Environment such as family and friends.

1.6.2 Dependent variables

- Knowledge on Prophetic Diet (Dates).
- Attitude on Prophetic Diet (Dates).
- Practice on Prophetic Diet (Dates).

1.7 Conceptual framework



CHAPTER 2: LITERATURE REVIEW

2.1 Prophetic diet (Dates fruits)

Al-Ghazali (as cited in Mohd *et al.*, 2013) have tell that heart is an important element that connects the physical and spiritual elements of a person. A person especially Muslim needs to give and pay a full attention they want to choose food because it may greatly affect the heart and even the soul. Thus it show that heart becomes the major element in shaping one's identity. Al-Bukhari (as cited in Mohd *et al.*, 2013) have claim that "In a body, there is a lump of flesh, if the flesh is good, then the whole body will becomes good and if it bad, the whole body becomes bad and it is heart".

Prophetic diet is one of the various guide by Prophet to His followers. It also proven can increase our health and our overall life. There are many food that recommended and practiced by Prophet which categorized as prophetic diet such as honey, dates, habbatussauda (black seeds), milk, melons and others. The increasing demands on prophetic diet or sunnah diet in Malaysia shown through various prophetic food product manufactured Malay Muslim's companies such as Hiraq Marketing, Saffron Integrated Marketing, Qaseh Gold, Naturalherbs and others. The high demand of various prophetic diet product has also shown an increased awareness among the Muslims community in Malaysia in practicing what have been practiced by Prophet Muhammad S.A.W in their daily life. Despite the increasing demands of prophetic diet, there are only few studies done in Malaysia to determine the actual practice among Muslim Malaysian communities (Nur *et al.*, 2016).

Dates are rich in certain nutrients and are widely consumed in various countries, particularly people who stay in the Islamic world. This matter have been directly referred to in the Qur'an and in the Ḥadith (sayings of the Holy Prophet Mohammed) (Alkaabi *et al.*, 2011).

Among all of Prophetic food, dates have been mentioned several times in Al-Quran and Hadith. For example, during the birth of Isa A.S., Maryam was asked by Allah to eat date fruits to relieve her labor pains as mentioned in the Holy Quran, surah Maryam, verse 25-26, *And shake towards you the trunk of the palm tree, it will drop on you fresh ripe dates, so eat and drink and be comforted.* (Nur et al., 2016).

2.2 Health benefits of dates

In medicine field, the research studies have shown that dates fruit provide various health benefits and its constituents have been proved to have anti-oxidative, anti-tumour, anti-inflammatory, anti-viral, anti-diarrhea and anti-ulcer effects (Rahmani *et al.*, 2014 ; Vyawahare *et al.*, 2009).

Other than that, the consumption of dates for the health benefits is generally for memory improvement, one of an alternative way to reduce pain and to facilitate the labor process. For memory improvement, previous study have scientifically proved that dates can

increase memory in mice due to its anti-mutagenic and anti-oxidant effect (Zangeneh *et al.*, 2009).

Dates also can be alternative way in effort to reduce pain. Based on one study, dates was used during *tahnik* or also familiar for Muslims is placing sugary substance in the mouth of newborn can be as analgesic effect by reducing the sense of pain and heart rate of newborn (Haouari *et al.*, 1995)

Dates also benefit many pregnant women, it was found that dates contain a substance that aids to facilitate the labour process. This substance known as oxytocin which is the hormone released by the anterior pituitary lobe that promotes uterine contraction. In addition, stimulant contents in dates help in strengthening the uterine wall of pregnant women in the last months of pregnancy. This can support in dilation of uterus in labour and reduces postnatal bleeding. This study also have been proved that dates can act as a substance that work on oxytocin receptors and induce earlier uterine contractions and improve response to syntocinon if needed. Another is the possibility of improved immunity to infection, with subsequent less incidence of pre-labour rupture of membranes. (Al-Kuran *et al.*, 2011).

2.3 Development of the dates fruit

The development of the dates fruit is classified into four stages. Stage 1: *'Kimri'* stage, stage 2: *'Khalal'* stage, stage 3: *'Rutab'* stage and stage 4: *'Tamr'* stage. In stage 1, there were characterized by two phases. In phase one, dates will undergo rapid increase in size

and weight. It continue increasing rate in accumulating sugar and have high moisture content. Dates also high in acidity in this phase. When it move to phase two, the rate of size and weight is reduced. While, rate of accumulating sugar also reduced but the moisture content in phase two is higher than in phase one. When dates continued growing in stage two, the color of dates changes from green to slightly yellow and red depending on the cultivar which is 3-5 weeks (Al-Hooti *et al.,* 1995).

In stage three, the dates begins to soften and lose water. This stage is prolonged for 2 to 4 weeks. The *Tamr* stage is the final stage of maturation when the date has dried to a fairly firm consistency with a darker color (Al-Shahib & Marshall, 2003). The first five main producing countries of dates are Egypt, Iran, Saudi Arabia, the United Arab Emirates (UAE) and Pakistan which produce 1.32 million tons, 1 million tons, 986,000 tons, 755,000 tons and 680,107 tons, respectively. The peak month production of dates is during Ramadan, the Islamic month of fasting (Ismail *et al.,* 2006).

2.4 Nutrients Composition in Dates

2.4.1 Water content

The amount of water content of dates slowly decreases when they start ripen from one stage to another stage. There are four stages in the development of dates as mentioned above which is *Kimri, Khalal Rutab* and *Tamr*. In the *Kimri* stage, the average of water is 83.6%. Then, in the *Khalal* stage water content is about 65.9%, and it continues to decrease when enter the *Rutab* stage which is 43% and lastly in the *Tamr* stage, water content of dates just remain 24.2% (Ahmed *et al.,* 1995).

2.4.2 Carbohydrate content

According to Shinwari, 1993 (as cited in Al-Shahib & Marshall, 2003) have mentioned dates contain a high concentration of sugar, which is considered as the main component. Total sugars ranged from 32.99-38.20% at the *Kimri* stage and increased progressively to between 77.97 and 79.39% at the *Tamr* stage (Al-Hooti *et al.,* 1997). Carbohydrate in dates is mainly compose of reducing sugars in the form of glucose, fructose, mannose and maltose and non-reducing sugars (primarily sucrose), as well as small amounts of poly-saccharides such as cellulose and starch .The simple form of sugar can easily absorbed by the human body (Al-Farsi *et al.,* 2005 ; Myhara *et al.,* 1999). Carbohydrates in dates is excellent source of energy which can act as natural laxatives and as one of medication against constipation (Mohd et al., 2013).

2.4.3 Fatty acid content

At all stages of development, the date fruits were very low in crude fat content (0.1-0.7%). The crude fat content in dates remained constant or continue decreased as the fruit passed through the different stages of maturity from the *Kimri* to the *Tamr* stage (Al-Hooti *et al.,* 1997). The saturated and unsaturated fatty acids occur both in flesh and seed. The saturated fatty acids in dates include capric, lauric, myristic, palmitic, stearic, margaric, arachidic, heneicosanoic, behenic and tricosanoic acids. Besides, the unsaturated fatty acids include palmitoleic, oleic, linoleic and linolenic acids (Al-Shahib & Marshall, 2003). High

amount of unsaturated fatty acid can help in declining serum cholesterol levels and indirectly protect human against cardiovascular disease (Kris-Etherton, 1999).

2.4.4 Vitamin content

Dates contain at least six type of vitamins which is vitamins (thiamin, riboflavin, niacin, ascorbic acid, pyridoxin, and vitamin A) and it have been reported to be present in dates in visible concentrations (Al-Hooti et al., 1995; Al-Shahib and Marshall, 2003). Compared to other fruits, dates have been considered as reasonable source of vitamins. Fresh dates contain higher concentrations of vitamins as compared to dry dates as the vitamins are lost in the drying process. Dried dates can be regarded as a moderate source of vitamin riboflavin, pyridoxine, niacin, and folic acid. Thiamin, ascorbic acid (vitamin C), and vitamin A are present in relatively low concentrations in dried dates (Amanat *et al,* 2012). However, researcher found that the concentration of vitamin C (ascorbic acid) is low which is at 0.002-0.02% (Al-Shahib & Marshall, 2003).

2.4.5 Mineral content

Dates contains at least 15 minerals. It contain natural fluorine which is the chemical element that is useful in protecting teeth from decay. Others mineral is selenium, which play roles in cancer prevention and help in maintaining people immune status (Al-Showiman, 1998). Based on previous study, ash content of the fruit pulp was highest (3.5-3.9%) at the *Kimri* stage and lowest (1.6-2.0%) at the *Tamr* stage.

Besides, dates is one of fruits that contain a very good source of minerals with its concentrations near to the average nutrient intake of minerals for person in daily. Potassium can be found in many types of dates with the high concentrations which is 0.9%. Other minerals and salts are found in various proportion such as boron, calcium, cobalt, copper, fluorine, iron, magnesium, manganese, potassium, phosphorous, sodium and zinc (Al-Shahib & Marshall, 2003).

The percentages of potassium, phosphorous and iron in dates is significantly higher than in other types of fruit. The quantity of the three minerals in dates is approximately three to five times higher the amount in grapes, apples, oranges and bananas (Al-Showiman, 1990). So date fruits are equally good sources of various minerals as these more common fruits (Al-Hooti *et al.,* 1997). Mineral boron compose in dates also useful in the treatment of cancer of brain. Besides, boron and vitamins are also used in the treatment of rheumatism (Al-Showiman, 1990).

2.4.6 Protein and amino acid content

Dates contain a high percentage of protein compare to other type of fruits. They contain 2.3-5.6% protein. Other fruits like apples contain 0.3% protein, oranges 0.7% protein, bananas 1.0% of protein, and grapes 1.0% amount of protein respectively (Al-Showiman, 1990). The increased protein contents after drying are mainly due to loss of moisture. In addition, dates contain many essential amino acids and their amino acids pattern is favorable to the human needs (Amanat *et al.,* 2012)

2.4.7 Fiber content

The dietary fiber content of dates varies depending on the type and degree of its ripeness (Al-Shahib & Marshall, 2003). Therefore, dates may serve as excellent sources of dietary fiber. This particular fact could be primary importance in health for people who stay in regions where consumed dates in large quantities daily. Dietary fiber in dates consists of cellulose, non-cellulosic polysaccharides (hemicellulose) and pectin. Lignin is also often classified as a dietary fiber. Cellulose is insoluble in water, but non-cellulosic polysaccharides (xylose and galactose) and pectin are partially soluble (Myhara et al. 1999).

Previous research has been conducted in the past years focused on the role of dietary fiber in health and disease. The result show that a low intake of dietary fiber is associated with a high incidence of colon cancer, heart disease, diabetes and other diseases (El-Zoghbi, 1994).

In addition, since dates have good nutritional value on dietary fiber content, it makes them suitable for the preparation of fiber-based foods and dietary supplements. Dietary fiber has important therapeutic implications for several conditions such as diabetes, hyperlipidemia, and obesity and may exhibit a protective effect against hypertension, coronary heart disease (CHD), cholesterol, colorectal and prostate cancers, and also intestinal disorders (Anderson, & Bridges, 1988; Brown *et al.*, 1999 & Tariq et al., 2000)

2.5 KAP on Dates

2.5.1 Knowledge on dates

Study conducted by Mohd *et al.*, (2016) on 162 adult residents of Kampung Sungai Dua, Tampin, Negeri Sembilan found that 20.4% respondents had poor knowledge regarding prophetic food, 58.0% respondents in satisfactory level and the rest 21.6% respondents have good knowledge of prophetic food. There are various benefits of dates that we can get especially in medicine. Previous studies have shown numerous health benefits of dates and its content which have been proved to have anti-oxidative, anti-tumour, anti-inflammatory, anti-viral, anti-diarrhea and anti-ulcer effects (Rahmani et *al.*, 2014; Vyawahare *et al.*, 2009).

In addition, dates have been significantly proved can increase memory in mice due to its anti-mutagenic and anti-oxidative effects (Zangeneh *et al.*, 2009). In Islam, people used dates during tahnik or known as placing sugary substance in the mouth of a newborn. It has been found to have analgesic effects by reducing the sense of pain and heart rate of the newborn (Haouari, 1995). For pregnant women, dates was contain a substance that aids to facilitate the labor process. This substance resembles oxytocin, a hormone released by the anterior pituitary lobe that promotes uterine contraction. Moreover, stimulant contents in dates also help in strengthening the uterine wall in the last months of pregnancy. The stimulant was support the dilation of uterus in labor and reduces postnatal bleeding (Al-Shahib & Marshall, 2003).

2.5.2 Attitude on dates

In aspect of attitude toward dates, there are no data found since most of study just focus on practice and knowledge of dates. But from previous KAP study of healthy eating conducted on the university students studying in the Universiti Malaysia Sarawak (UMS), researcher was examined the level of attitude based on given statements on healthy eating. Based on the data, the level of attitude among UMS students was satisfactory as a whole. Thus, based on this finding, it can be the indicator that most of the UMS students were aware of the importance of diet in health (Aung *et al.,* 2012).

2.5.3 Practices on dates

While study about Practice of *Phoenix dactylifera* (Dates) among Residents in Kg. Dato' Ahmad Razali, Dengkil, Selangor: A Preliminary Study by Nur *et al.,* (2016) reported that level of practice on dates consumption was still low because only 17% of the respondents have consume dates every day and 34% of them only consumed dates during Ramadhan. Another study on 162 residents mentioned that most of respondents have practice consuming dates throughout the year (Mohd *et al.,* 2016). However, study on International Islamic University Malaysia (IIUM) by Mohd *et al.,* (2013) shows that only three students out of 45 students from health sciences background preferred to practice modern diet instead of prophetic diet since they are exposed more on modern diet. But for engineering students, all students from the faculty preferred to practice *Sunnah* diet over modern diet.

2.6 Factor affecting KAP on dates

2.6.1 Background Courses.

Previous study about Muslim's Youth Perception on Sunnah Diet that conducted at IIUM involved students from several Faculty which are Medicine, Dentistry, Nursing and Engineering. In this study, 45 students were asked to choose between modern diet and Prophetic diet which one they preferred the most. Based on the data, all Engineering students more preferred to practise Prophetic diet over modern diet. Meanwhile, a student from each Faculty of Medicine, Dentistry and Nursing preferred to practice modern diet compare to Prophetic diet (Mohd *et al.,* 2013).

This is because these students from Faculty of Medicine, Dentistry and Nursing are medical sciences students. They tend to preferred most on modern diet because they are exposed to modern food and they are convinced that modern diet is more relevant, more suit according to their appetite and better for today's lifestyle. In their study, they learn more about the benefits of modern food compared to Prophetic food (Mohd *et al.,* 2013).

Based on this study, it show that student will have their own perception about Prophetic diet based on their study background. Students that study in medical sciences more preferred on modern food compared to engineering student.

Previous study, researchers have conducted a KAP study about consumption of dates on residents in Kg. Dato' Ahmad Razali, Selangor. The data that researchers get is only explains the problems faced by residents why they cannot practice that prophetic food (dates). Even many researches have shown numerous beneficial effects of dates, the study level of practice on consumption of this food was still low. Based on this study out of 40 respondents, only 7 respondents eat dates every day and only 14 respondents consumed it during Ramadhan. The reason why many people consumed dates during fasting is due to the increase demands of dates during fasting month, which makes it easily to access (Nur *et al.*, 2016)

In other hand, the same study show that the main reasons why the respondents did not consume dates every day were because of forgetfulness, not a habit and less of awareness. Other reason is because dates were not easily accessible and difficult to find during non-Fasting days. Sweet taste, palatability and expensive also be the reasons person nit consume it. In addition, for health benefits this study show that more than half of respondents which is 24 out of 40 claimed that they consumed dates to improve memory. Furthermore, respondents claimed that either they or their family members consume dates to facilitate the labour process and very less of them consumed dates for the purpose of controlling blood pressure (Nur *et al.*, 2016).

2.6.2 Environment factor

Environment factor is referred to the family member and friends. A local study among IIUM students, researchers found that people who are live in the environment where people always practise Prophetic food around them will more to follow the practice since they surround by supportive people (Mohd *et al.,* 2013).

Other than that, family also as one of the major influence on someone'/s act. A child usually learns faster at their young age as compared to when they have grown up. As a parents, they should teach their children at that age to instil a good values and good morals in humans because at this stage, they are the closer to their children. Besides, a good friend can also help another to increase practice on prophetic diet. If they have family member and friends who are company them to eat dates, it can this will make them more eager to practice this diet (Mohd *et al.,* 2013).

2.6.3 Family income

In aspect of family income, there are very limited data that shows the relationship between respondents' family income on knowledge, attitude and practices on dates. Just one data from study conducted by Mohd et *al.,* 2016 shows that they was no association between residents socio-demographic and level of knowledge

2.7 Body Mass Index (BMI)

According to WHO, 1995, Body Mass Index (BMI) classified as underweight (BMI <18.5), normal (BMI 18.5-24.9), overweight (BMI 25-29.9) and obese (BMI (≥30). In addition, BMI is one of the method used to assess the nutritional status of a population. BMI is used to understand the health and socioeconomic status of population (Herrera *et al.*, 2003). Based on the previous study conducted on Universiti Sains Malaysia (USM) main campus students by Huda & Ruzita (2010), they found that about 61% of the respondents were in the normal range, while for underweight is about 27% and about 12% were overweight. Moreover, researcher found that there is a higher percentage of the underweight among USM students (Huda & Ruzita, 2010). Adolescence into adulthood have the potential to have overweight and obesity due to the tendency of adolescence unhealthy eating and activity habits to persist into adulthood. So, colleges and universities are probably targets to promote healthy physical activity in order to decrease the prevalence of overweight among adult population (Lowry *et al.*, 2000). Another study cross sectional study conducted at Sungai Long campus of University Tunku Abdul Rahman (UTAR) which include Faculty of Medicine & Health Sciences (FMHS) and Faculty of Accountancy & Management (FAM) found that majority of the participants 68.5% had normal body mass index, while underweight is 18.2% and 13.6% were overweight and obese (Kutty *et al.*, 2015).