CHAPTER IV :

FINDINGS

MEDICAL PERSPECTIVE: VENOUS THROMBOEMBOLISM (VTE) DURING PREGNANCY AND PUERPERIUM AND ITS PHARMACOLOGICAL PREVENTION

4.1Introduction

This chapter has detail elaboration on VTE during pregnancy and puerperium and related subject acquiring LMWH usage as treatment for those whom are at-risk. In this chapter, scientific facts have revealed the reasons and justifications of choosing LMWH as first option of anticoagulant for women in pregnancy and puerperium which are known are at higher risk of developing VTE event. Unprecedented medical complications following VTE events and its option for anticoagulant treatment specifically LMWH and other types should be studied thoroughly prior to the efforts to conclude an Islamic legal rule regarding its usage due to the prolonged public dispute.

4.2 VTE Pathophysiology during Pregnancy and Puerperium

VTE is a known silent killer among pregnant and puerperium women in most developed countries (MOH, 2018, Ian A Greer, 2015). Despite its preventable measures and perhaps prompt diagnosis, yet it has posed challenges owing to its subtle symptoms but lethal and catastrophic complications amongst VTE sufferers (Ouetllete, 2019). VTE occurs with prevalence one in 1,600 and it is responsible for maternal mortality

approximately 9% (Gomes et al, 2018) while American College of Obstetricians and Gynecologists (ACOG) in their Bulletin summarized the rate of the VTE events approximately 80% in pregnancy, with a prevalence of 0.5 – 2.0 per 1,000 pregnant women (ACOG, 2018).

The incidence of VTE is not uncommon in pregnancy and puerperium as it was reported as 1 in 1,000 to 1 in 2,000 deliveries (E. Conti et al., 2013). In the Asian Region Pacific, even though the maternal death decreased in Japan, but the rate of maternal mortality associated with VTE is increasing with 14 maternal deaths due to VTE were reported in Japan between 2010 and 2012 and 8% directly contributed from Pulmonary embolism (Hasegawa et al., 2016).

Pregnancy itself is the potential risk for VTE with 4 - 10 times compared to non-pregnant state (Rosenbloom et al., 2019, Mardiana et al., 2016, ACOG, 2018) while puerperium poses a higher risk than pregnancy state with 15 to 35 fold compared to age-matched non-pregnant women (ACOG, 2018, Bates et al, 2016). Although the event of VTE among pregnant women is considered low in incidence, numerous studies revealed that obstetric VTE seems to be highly associated with maternal mortality around the globe (Duffy & Friedman, n.d., Meng et al, 2014). The evidences clearly depicted that VTE is the major contributing cause for maternal mortality during pregnancy(A. M. Friedman, 2019). The risk for VTE seems to be the highest among post partum women exists in all three trimesters (Bates et al., 2016) while some purposed that it begins from the first trimester and the highest is in the third trimester (Ouetllete, 2019).

VTE related to blood clotting during pregnancy has been easily contributed by all of the components of Virchow's triad (G. Gray et al., 2012) which fulfilled three main factors, including hypercoagulability, venous stasis and , vascular damage. All the

factors physiologically occur during pregnancy and continue until the end of the puerperium period.

According to Gray, Gabriella, Virchow's triad pathophysiological, clarified about the basic factors why pregnant and puerperium women are aesy target for this complication and later becomes symptomatic patients of VTE.

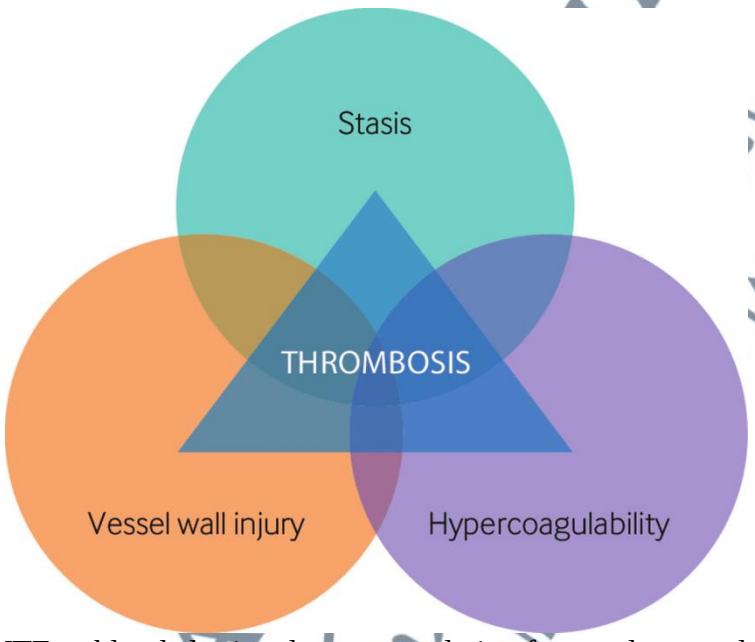

Figure 2.0: VTE as blood clotting due to coagulation factors decreased (Khan et al., 2017)

Figure 2.0 shows three elements when occurs in combination later developed the incidences of VTE in pregnancy. Firstly, hypercoagulability state is normal for pregnant women due to increasing coagulation factors. The physiological decreament of blood coagulation inhibitors during pregnancy often times definitely develops hypercoagulation state. It is a part of normal changes that occurs as a hemostasis preparation for birthing process which may have tendencies bleeding incidence during birth (Loo, 2014). Second, venous stasis happens as a result of a diminution stemming of pressure because of the fetus in uterus on the iliac veins and vena cava (Meng et al.,

2014). Third, the vascular damage could occur in vaginal system and the caesarean section deemed as main cause to that vascular damage incident (Ginsberg, 2003).

Although Vichow's triad are easily fulfilled in pregnant women, there are numerous research depicting other contributing risk factors which further contribute for further blood clot or VTE of the patient such as increased maternal age, obesity, cesarean delivery, immobilization because of threatened abortion and threatened premature delivery, dehydration because of hyperemesis, heart disease, and a history of thrombosis and thrombophilia (Kawaguchi, 2016, RCOG, 2015, Abbasi et al., 2013, Cohain, 2019). One of the strongest risk factor is a previous pregnancy related VTE with approximately 6 to 9% in subsequent pregnancy (Ian A Greer, 2015).

During hypercoagulability state in pregnancy, few factors increase, and some factors decrease will occur normally. For example, plasma fibrinogen concentration increases by 50%, factor V, VII, VIII, IX, X and XII and platelet reactivity in 2nd and 3rd TMs till one week postpartum will increase. Factors that decrease in blood during pregnant are fibrinolytic activity and protein S as inhibitor of coagulation (Rasheed, 2014).

Incidence and mortality are two different meanings in medical field. Incidence is probability of occurrence of a medical condition (The Free Dictionary, n.d.) which measured by proportion or rate. The proportion or rate the incidence of VTE during pregnancy and puerperium is associated with high mortality. While maternal mortality is defined as:

"A maternal death is defined as the death of a womanwhile pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravatedby the pregnancy or its management but not from accidental or incidental causes."(Yadav, 2012).

The Confidential Enquiry Maternal of Malaysia (CEMD) between 2010-2015 reported that overall rate of maternal mortality in Malaysia had decreased slightly to 274 deaths from 277 deaths in the year 2014. However, the number of maternal mortalities tremendously raised to 302 in year 2010-2016 with obstetric pulmonary embolism as the principal cause. It was observed that the maternal mortality was increased from 23.8% in 2015 to 29.1% in 2016.

This statistical data revealed that from the year 2010 till 2016, pulmonary embolism has been the top ranking of maternal mortality cause during pregnancy and puerperium (DOSM, 2017). The researcher is going to explain further types of VTE during pregnancy and puerperium prior to the pharmacological treatment used such as LMWH and other types of anticoagulants with their dispute issues,

4.2.1 Manifestation of VTE During Pregnancy and Puerperium

According to the Medical Dictionary(n.d.), venous thromboembolism is defined as blood clot that forms in a vein and later migrate to another location. Typically, a deep venous thrombosis that can later migrates and becomes pulmonary embolism; which often leads to serious health consequences.VTE is never been a minor public health in patients, instead it is recognized as a serious killer disease globally especially in developed countries (Chan, 2018).

Over the globe, there are about 10 million cases every year and ranked as third leading vascular disease after myocardial infarction and stroke (Gregson et al., 2019). VTE in the United States, as annual incidence recorded one or two per 1000 persons, while the mortality rate due to VTE between 60,000 to 100,000 (Wilbur et al, 2017).

VTE is manifested into two most commonly seen and important types of it. These consist of, first, pulmonary embolism (PE) and second, deep vein thrombosis (DVT) as explained as following;

4.2.1.1 Deep Vein Thrombosis (DVT)

During pregnancy, the lower limbs were parts of the women routine examination during monthly antepartum inspection. Furthermore, the incidence of DVT is greater during antepartum in any trimesters (Gomes et al., 2018). DVT is the most important morbidity during pregnancy that affects peripheral venous (Ginsberg, 2003). That medical inspection is considered as a normal situation during pregnancy. DVT can be defined as "blood clots in the pelvic, leg, or major upper-extremity veins" (Goldhaber, 2006).

The symptoms of DVT in pregnancy can be observed by some serious state such as swelling legs, pain, ulceration and discoloration are the examples of morbidities related pregnancy term in which able to downgrade the quality of life of the affected people. In addition to that, due to physical changes in pregnant women, approximately one-third with DVT accounted for two-third and one third of PE patients (Wilbur et al., 2017).

In common, DVT occur in the left leg than right leg. Sbeqi (2015) justified it due to "increased venous stasis in the left leg related to the compression of the left iliac vein by the right iliac artery, coupled with compression of the inferior vena cava by the gravid uterus itself".

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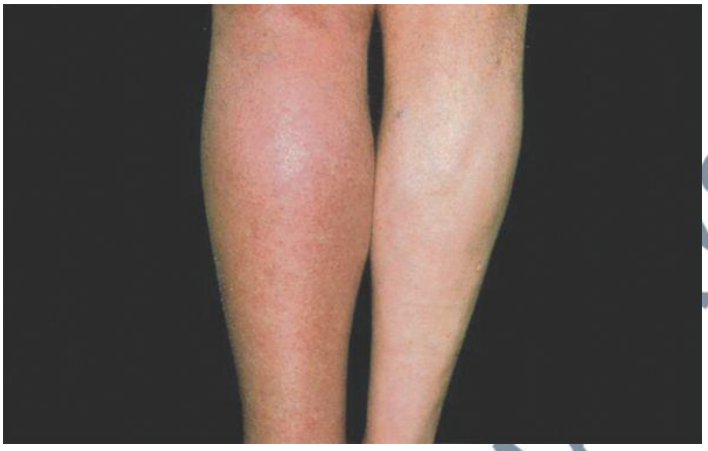

Figure 2.1: Swollen leg due to DVT during pregnancy (Kwei, 2018)

The seriousness of VTE morbidity around pregnancy in Sweden and Norway depicted in their retrospective study, which showing that leg ulceration is the most severe illness for 7-27 years and DVT related pregnancy is account for 42% for 3-16 years, respectively (Abe et al., 2019). A study held by Nara Medical University reported that DVT was possibly the highest in the first trimester occurred to Japanese women (Kawaguchi et al, 2016) and appears to decrease in puerperium time (Abe et al., 2019)

As it very often to occurs during antepartum, the clinical therapy to prevent the occurrence of DVT antenatally or postpartum is using anticoagulant therapy. Anticoagulation inhibits certain clotting factor in the body and further prevent the blood to clot avoiding thrombus propagation and against catastrophic VTE complication including pulmonary embolism (PE) (Huegel et al, 2018). Research by Abe et al., (2019) stated that DVT occurs three to four times compared to PE during pregnancy.

4.2.1.2 Pulmonary Embolism (PE)

Pulmonary embolism (PE) is a horrifying disease during pregnancy as well as postpartum. Maternal mortality and morbidity due to PE are more common among women who delivered by cesarean section and hospitalization after 90s. Yet the

statistical figures seem platueing after the year 2014 as increasing awareness and intervention started.

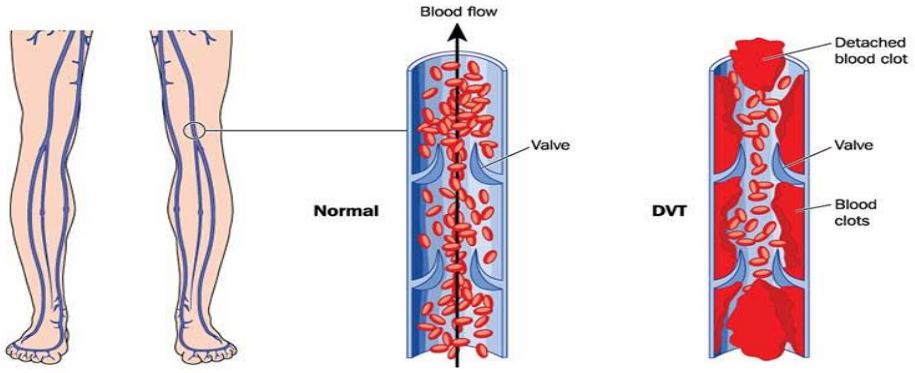

Figure 2.2: Deep vein Thrombosis in left leg (Salzman, 2019)

Figure 2.3: The migration of a thrombus into pulmonary embolism (Salzman, 2019)

Picture 2.2 and 2.3 shows the example of PE occurrence during pregnancy and puerperium. Blood clots formed out of DVT incidence in the veins may dislodged and travel through the heart, and lodge in the smaller vesssels of lung arteries, causing potentially deadly PE complication (Goldhaber, 2006). The incidences were uncertain

at times as there were frequently delays of diagnosis in time. In addition to that, the signs and symptoms of a suspected PE or DVT can overlap with the physiological changes of a normal pregnancy such as classical dyspnea and edema (E. Conti et al., 2013), tachycardia and swelling of the legs (van der Pol et al., 2019).

Most clinician agreed that the diagnosis of PE found accordance some system particularly when the lower limb swell due possible due to femoral or iliac thrombosis and the emboli occur from deep in the thigh. Some symptomatic women will complain of having chest pain with or without splinting.(Brown & Hiett, 2010). Thus, the clinicians must always maintain the high-index of suspicious and decide the most appropriate management of VTE depending on the presenting symptoms, and the assessment.

Thrombotic PE is reported as the most severe morbidity and mortality during delivery hospitalization approximately 72% (0.81 to 1.39 per 10, 000) while 169% during postpartum hospitalization (1.33 to 3.57 per 10, 000) (Abe et al., 2019). Other than hospitalization, caesarean and aviation can contribute to development of PE either due to immobility in long haul and hypoxia hypobaric cabin environment (Mardiana et al, 2016). Handal et al (2019) reported that massive PE during pregnancy must be treated base on individual consultation.

The actual risk of death from obstetric VTE specifically Pulmonary Embolism (PE) begins at first week postpartum is approximately at 1.1 out 100, 000 while 90% thromboembolism occurs in the first week after birth (Burgess & Clark, 2019). Nevertheless, VTE is still categorized as common preventable disease during pregnancy and puerperium.

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4.2.2 Prevention of VTE during Pregnancy and Puerperium

Preventive measures of VTE during pregnancy and puerperium are called thromboprophylaxis. According to Sbeqi (2015), thromboprophylaxis for VTE can be classified under two types; 1) pharmacologic, and; 2) mechanical. The thromboprophylaxis measures and weightage may differs amongst all women at risk for VTE. The patients will be assessed regarding current treatment by the medical doctors, some questions either antepartum or postpartum asked some risk assessment will be screened.

4.2.2.1 Mechanical Thromboprophylaxis for VTE during Pregnancy and Puerperium

Method of thromboprophylaxis for VTE during pregnancy and puerperium are considered for women are at risk stemming from a major maternal mortality and morbidity during pregnancy and puerperium. Mechanical thromboprophylaxis which also known as non-pharmacological prophylaxis such as graduated compression stocking, intermitted pneumatic compression, early mobilization and surveillance by which screening as at risk for VTE incidences to prevent DVT or PE(Wilson et al., 2014) are necessarily needed for those who are at risk in order to keep the blood circulation moving smooth in pregnancy and puerperium.

However, this subdivision will elaborate the pharmacologic, rather than nonpharmacologic as thromboprophylaxis for VTE during pregnancy and puerperium in virtue of responding the first research question of this research.

4.2.2.2 Pharmacologic Thromboprophylaxis for VTE during Pregnancy and Puerperium

RCOG (2015)guidelines mentioned, women need antenatal prophylaxis through anticoagulant with LWMH up to 7%. Voon et al (2018) presented in their retrospective cohort study that the main maternal risk factors contributing for thromboprophylaxis in postpartum are maternal age at 35 years onwards, parity 3 children or more and BMI 30 kg and above. LMWH usually offered as the first line for prophylaxis during puerperium. Woman with lower score require a minimum of ten days prophylaxis LMWH. Yet the dosing may increase if the were other additional risk factors such as caesarean delivery, Risk Assessment of VTE during pregnancy and puerperium in Malaysian Hospitals

All pregnant women will undergo an assessment process to determine which VTE risk they have been categorized (Sultan et al., 2016) and there is no consensus across countries regardingthe types of thromboprophylaxis should be set up in each hospitals. However, it is crucial to assess every pregnant women on individual basis whom are at risk of VTE (Vitner et al, 2018).

Nevertheless, absence of high-index of assessment or suspicion of VTE upon women at risk, will produce a high-rate of morbidity and mortality during pregnancy and puerperium (Mc Lintock et al., 2012). Thromboprophylaxis during pregnancy and postpartum through systematic risk assessment (Wilson et al., 2014) is required to be performed to reduce morbidity and mortality regardless howadvanced our technology are..

The risk of getting VTE may be avoided or reduced with prompt prophylaxis. In Malaysia, MOH published a clinical practical guideline (CPG) of VTE which

mentioned regarding prophylaxis and treatment of VTE. The CPG was designed and reviewed based on the 2009 RCOG Green Top Guidelines 37 recommendations. The first guideline was published in the year 2003 and renewed in 2013. The first edition of the Training Manual for the Prevention and Treatment of Venous Thromboembolism in Pregnancy and the Puerperium was published in 2014 and later renewed in 2018. In other countries outside UK, they practiced other guidelines such as Society of Obstetrics & Gynecology in Canada (SOGC) and American College of Obstetricians & Gynecologists (ACOG)(MOH, 2013). Although there are many guidelines available, with variation in setting and minor clinical criteria and reference, all of them agreed upon the usage LMWH as thromboprophylaxis antenatally and postpartum as VTE treatment.

4.2.2.3 Risk Assessment during Pregnancy

The table 1.4 below is the antenatal risk assessment which are used among pregnant women to assess their VTE risk-scoring at booking and stratified into any of these three groups. The table includes the recommendation of VTE management as provided by MOH.

Table 1.4: Risk groups and indications for antenatal thromboprophylaxis (MOH, 2013)

High risk	**Recommendation**
Risk factors	**Management**
Any one Single previous VTE with: Family history Unprovoked/estrogen-related Previous recurrent VTE > 1	Require antenatal prophylaxis with LMWH: Enoxaparin 1mg/kg Tinzaparin 4500 units daily (if BMI under 90kg, to dose at 75 units/kg daily)
Intermediate risk	**Recommendation**
A. Risk factor	**Management**
Anyone (if admitted into hospitals): single previous VTE with no family history medical comorbidities for example,	Consider antenatal prophylaxis with LMWH either Enoxaparin 1mg/kg or Tinzaparin 4500 units daily (if BMI under 90kg, to dose at 75 units/kg daily)

heart/lung diseases cancer SLE, Thalassemia Sickle cell disease nephrotic syndrome inflammatory conditions IDVU Appendicectomy	
B. Patient risk factors (see below)	
Any 3 or more Any 2 (if admitted into hospital)	
Low risk	Recommendation
Risk factor	Management
Any 2 or less (not admitted into hospital): Age > 35 years obesity BMI > 30 parity > 3 smoker gross varicose veins current systemic infection immobility e. g paraplegia, long-haul travel > 4 hours pre-eclampsia dehydaration/hyperemesis/OHSS multiple pregnancy, assisted reproductive treatment,	Mobilisation avoid dehydration

According to the table 1.4 above, it states that all women will be stratified into risk group according to their risk factors: 1) High risk 2) Intermediate risk 3) Low risk. The management of thromboprophylaxis will depend on the risk group. Importantly, the principal management of VTE that is compulsory to be emphasized during antenatal for all risk groups is to encourage mobilization and avoid dehydration (Guidelines, n.d.).

Overall, according to the antenatal management of thromboprophylaxis, clinicians will repeat the assessment if the woman is admitted to the hospital for any reason or develops other intercurrent problems during antenatal or postpartum(MOH,

2013).

4.2.2.4 Postpartum Risk Assessment

Most guideline on preventions VTE for postpartum such as RCOG, 2015, ACOG, 2018 (McLintock et al., 2012, Lindqvist et al, 2011, Wan et al, 2017) as well as in CPG and in Training Manual 2018, include postnatal risk assessment and the recommendation on the management for thromboprophylaxis. Most of the guidelines like ACCP, Australia, Sweden, New Zealand and RCOG are extrapolated from case–control studies which reported relative risks of VTE in women with various risk factors and screening studies (Simpson et al, 2001).

Table 1.5: Risk groups and indications for postnatal thromboprophylaxis (Abdul Rashid et al, 2013)

High risk	**Recommendation**
Risk factor	Management
Any previous VTE Anyone requiring antenatal prophylactic LMWH	At least 6 weeks postnatal prophylactic LMWH
Intermediate risk	Recommendation
Risk factor	**Management**
Anyone Cesarean section in labour BMI >40 Prolonged hospital admission Medical comorbidities e.g: Heart/lung diseases SLE Cancer Inflammatory conditions Nephotic syndrome Sickle cell disease Thalassemia IVDU	At least 7 days postnatal prophylactic LMWH If persisting or > 3 risk factors, consider extending thromboprophylaxis with LWMH
Patient risk factors (See below)	
2 risk factors	
Low risk	**Recommendation**
Risk factor	Management

Any 1 factor: Age > 35 year Obesity BMI > 30 Parity > 3 Smoker Elective CS Any surgical procedure in the puerperium Gross varicose veins Current systemic infection Immobility e.g. paraplegia, long haul travel > 4 hours Pre-eclampsia Mid-cavity rotational operative delivery Prolonged labour> 24 hours Assisted reproductive treatment PPH > 1 litre or blood transfusion	Mobilisation Avoid dehydration

Postpartum carries a higher risk of developing thrombosis as many VTE complications occur during time. Post caesarean delivery, obesity with immobilizationand dehydration predisposes to greater risk. For postpartum, women must be assessed after delivery during their confinement period and stratified into risk groups based on their risk factors. thromboprophylaxis with LMWH should be prescribed wherenever appropriate. The incidence of VTE in postpartum recorded 637 episodes per 100 000 person-years and equates to 147 VTE during the 12-week postpartum period(Kotaska, 2018). Meanwhile, Simpson et al., (2001) estimated that puerperal DVT accounted for 38%, and approximately 22% occurred after discharge from hospitals which should not taken lightly.

4.2.2.5 Risk Assessment Model (RAM)

Literatures revealed few Risk Assessment Model (RAM) that have been used in identification VTE risk factors for thromboprophylaxis. Scoring system is a validated identification of those who are at increased risk of VTE for thromboprophylaxis and

applied across countries (Łukaszuk et al, 2018). Each risk factor represents the score and the score determines the whole management that the patient will procure.

Initially, the scoring system with using RAM extrapolated from non-obstetrical patients whom had serious comorbidities such as malignancy, prolonged hospitalization, history of stroke and cardiovascular. Caprini began in 2001 for in-patient not pregnant case, later Padua appeared to cover the disadvantages of RAM in 2012 and RCOG designated to compliment both of them in by which proposing a scoring system which focusing on obstetrical population's risk factors for thromboprophylaxis (Tran et al., 2018).

National Partner for Maternal Safety (NPMS) recommended for thromboprophylaxis in obstetrics based on a multidisciplinary consensus panel as following: "a) VTE risk assessment for all pregnant women during any hospitalization in the intrapartum and postpartum period. b) Utilize of modified Caprini scoring or Padua scoring systems to calculate or evaluate VTE risk. c) Pharmacologic prophylaxis for women hospitalized for three days or longer, and d) Pharmacologic prophylaxis for women undergoing cesarean delivery" (D'Alton et al., 2016).

American College of Chest Physicians (ACCP) had referred to the recommended Caprini and Padua prediction score (PPS) for thromboprophylaxis determination. Caprini operated in 1991 and validated tremendous studies in general VTE risk factors for thromboprophylaxis including, surgical and medical patients (Tran et al., 2018) which is not specific for pregnant consideration. Meanwhile PPS as preferred risk stratification tool in non-surgical patients in 2012,suggested that patient with four or above points of score are at high risk VTE and shall require for thromboprophylaxis during hospitalization (Johari moghadam et al, 2018). PPS has potential to improve the stratification of VTE risk in hospitals provided it is practically

used as routine screening (Barbar et al., 2010).

Later, RCOG designated a scoring system aiming at maximizing sensitivity at the expense of cautiousness among obstetric population which includes few risk factors such as age older than 35 years,obesity, multiple gestation, and pregnancy from assisted reproductive technology especially in vitro fertilization(RCOG, 2015a).

Most importantly, RCOG, ACCP and NPMS recommended that the RAM used as the VTE scoring system among patients and to exercise with only one system for daily practice in hospital consistently. In Malaysia, RCOG guideline for obstetric patients in hospitals by clinicians has been the main reference for many years. The CPG published in Malaysia in 2003/2004 encompassed substantially from RCOG itself with some adjustments to accommodate local practice and issues. The CPG stated that any women suspected to have VTE should be assessed and written in VTE documentation sheet with scoring system as well. Recently, MOH produced a handy score sheet for Malaysian clinicians check the VTE scores during pregnancy and puerperium. The assessment evaluates at four stages of pregnancy (MOH, 2018) such as 1) pre-pregnancy 2) antenatal booking 3) During Each hospital admission or whenever a new risk factor occurs 4) Postnatal. All women in pregnancy and puerperium at any level, considered as low risk should be counselled on VTE signs, symptoms and its prevention.

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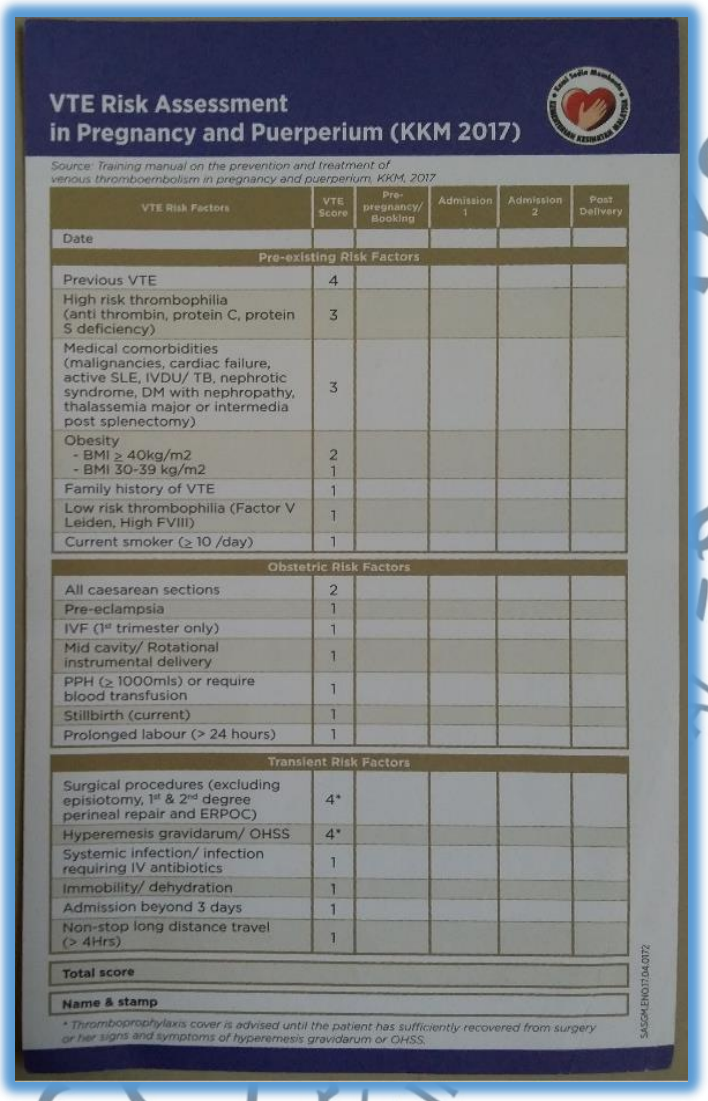

VTE Risk Assessment in Pregnancy and Puerperium (KKM 2017)

Source: Training manual on the prevention and treatment of venous thromboembolism in pregnancy and puerperium, KKM, 2017

VTE Risk Factors	VTE Score	Pre-pregnancy/ Booking	Admission 1	Admission 2	Post Delivery
Date					
Pre-existing Risk Factors					
Previous VTE	4				
High risk thrombophilia (anti thrombin, protein C, protein S deficiency)	3				
Medical comorbidities (malignancies, cardiac failure, active SLE, IVDU/ TB, nephrotic syndrome, DM with nephropathy, thalassemia major or intermedia post splenectomy)	3				
Obesity - BMI ≥ 40kg/m2 - BMI 30-39 kg/m2	2 1				
Family history of VTE	1				
Low risk thrombophilia (Factor V Leiden, High FVIII)	1				
Current smoker (≥ 10 /day)	1				
Obstetric Risk Factors					
All caesarean sections	2				
Pre-eclampsia	1				
IVF (1st trimester only)	1				
Mid cavity/ Rotational instrumental delivery	1				
PPH (≥ 1000mls) or require blood transfusion	1				
Stillbirth (current)	1				
Prolonged labour (> 24 hours)	1				
Transient Risk Factors					
Surgical procedures (excluding episiotomy, 1st & 2nd degree perineal repair and ERPOC)	4*				
Hyperemesis gravidarum/ OHSS	4*				
Systemic infection/ infection requiring IV antibiotics	1				
Immobility/ dehydration	1				
Admission beyond 3 days	1				
Non-stop long distance travel (> 4Hrs)	1				
Total score					
Name & stamp					

** Thromboprophylaxis cover is advised until the patient has sufficiently recovered from surgery or her signs and symptoms of hyperemesis gravidarum or OHSS.*

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Figure 2.4: VTE Risk assessment in Pregnancy and Puerperium (MOH, 2017)

Figure 2.4 shows each risk factors with the respective score points. Patient with more than one risk factor will have the calculated cumulative score by adding the total of each score. Sometimes, patients might have 1 risk factor but directly fall into high risk without any additional score. For example, a patient with previous VTE during her last delivery, she has direct score of 4 point and automatically become high risk. The following table shows the plan of management that all patients will receive with respective scoring after assessment.

Table 1.6: The Duration of Thromboprophylaxis during Pregnancy and Puerperium. Source: *Training manual on the prevention and treatment of venous thromboembolism in pregnancy and puerperium, MOH, 2017.*

Period	Score	Duration of thromboprophylaxis
Antenatal	>4	Consider giving from 1st trimester up to 6 weeks postnatal (give up to 6 weeks postnatal if there is a single risk with a score of 4). If a combination score of >4, If a combination score of >4, then give up to 3 weeks postnatal then to be reviewed by an O&G specialist to decide if a further 3 weeks of prophylaxis is warranted).
Antenatal	3	Consider prophylaxis from 28 weeks till 3 weeks postnatal
postnatal	≥2	Consider prophylaxis for 10 days
postnatal	≥2	Consider prophylaxis for 10 days or longer, specialist to decide

The score for each risk factor valued and summed up to a final score value which later evaluated by clinicians. For example, if she had ever had previous VTE, the score is 4. This patient needs serious attention with close health care monitoring, as VTE score 4 is highly recommended to prescribed LMWH such as Enoxaparin or Tinzaparin as anticoagulant prophylactic treatment. If the patient assessed just delivered through cesarean section, scores 2 points is recorded, admission beyond 3 days will add another 1 point to the score and similarly if BMI is around 30-39kg/m^2 another 1 point score added. Eventually, if all that obtained points summed up and equal to 4 or more points. Then, that patient shall require to consume anticoagulant with LMWH and perhaps with longer duration.

The advantage for using scoring system with RAM lies in a number of factor which able to determine all those medical conditions for which strongly recommend the need for thromboprophylaxis upon the pregnant women as well as puerperium period.

In general, the training manual (MOH, 2018) explains, there are five important points of care to assesss in all pregnant women. First, who attend health clinic must go through the pregnancy booking assessment which include the VTE assessment risk.

Second, patients with antenatal score 3 or more requiring thromboprophylaxis must have further discussion with O&G specialists or family specialist medicine prior to start of the treatment. Third, all mothers who delivered at hospital, alternative birthing center, health clinics, home delivery or birth also should receive VTE risk assessment. Fourth, all patients at risk should be advised on non-pharmacological thrombolytic such as avoid dehydration, usage of anti-embolic stoking and early mobilization. The Fifth point is to consume pharmacological thrombolytic treatment when recommended by clinician.

4.2.3 Anticoagulants for Thrombotic Treatment

Anticoagulants are the essential pharmacologic therapy for venous and arterial thrombotic diseases either for prevention or treatment purpose. Anticoagulant defined as "a medication used to prevent the formation of blood clots and to maintain open blood vessels. Anticoagulants are called blood 'thinners', but they do not thin the blood, they only prevent or reduce clots, or thrombi. Anticoagulants have various uses. Some are used for the prophylaxis (prevention) or the treatment of thromboembolic disorders, such as stroke, heart attack (myocardial infarction) and deep venous thrombosis (DVT). Emboli are the clots that break free, travel through blood stream and lodge in a blood vessel such as pulmonary embolism."(medicinenetwork.com, n.d.)

Anticoagulation is a term referred to a substance that prevents the clotting blood (Medical Dictionary, n.d.) or in scientific term anti-thrombin or anti-thrombosis. Anticoagulants provided in the form of oral such as Warfarin, intra venous infusion (IV) or subcutaneous (SC) injection like UFH and SC injection such as LMWH or Clexane (Novotný et al, 2018). All clinicians must know the benefits and risks all kind of anticoagulant and reasonably prescribe to patients depending on patient medical

condition and background profile. For example vitamin K antagonists (VKA) is an effective choice for oral anticoagulant to prevent mechanical valve thrombus, however it has direct effect to the unborn baby because VKA can cross the placenta (Alshawabkeh et al., 2016).

The most effective, safest pharmacologic anticoagulant and balancing the cumulative benefits and risk of patients upon mother and fetus are the crucial concerns amongst of many types of anticoagulants, coupled with bioavailability and safety profile, the option of types of anticoagulants should also safely used in pregnancy and puerperium.

4.2.3.1 Types of Anticoagulants

There are many types of anticoagulants used for prevention and therapy treatment of VTE over the globe such as Aspirin Antiplatelet (ASA) (Bates et al., 2012), Vitamin K antagonists (VKA) such as Warfarin (Alshawabkeh et al., 2016), Direct oral anticoagulants (DOAC) (Lameijer, 2018, Bapat et al., 2014), Danaparoid (Scheres et al, 2019), Argatroban (Sommerfield et al, 2010). However, the researcher does not intend to extend the discussion with those mentioned anticoagulants. Only three anticoagulants will be discussed in this chapter as these three types of anticoagulants outlined and utilized by MOH in the CPG during pregnancy and puerperium.

i. Three Anticoagulants Used in Malaysia for Prophylaxis and Therapeutic Treatment during Pregnancy.

The hypercoagulability among pregnant women are due to body preparation of bleeding prevention during birthing process. Similarly, through miscarriage or childbirth. Some clotting factors increase such as VIII,IX and X (Soma-Pillay et al, 2016) yet the net effect causing hypercoagulability, however the clotting parameter remains within

normal range . Furthermore, the mechanism of anticoagulant during pregnancy include an increase in maternal blood volume of 40% to 50% and an increase in the volume of distribution (James, 2015). The following are the three examples of anticoagulation in Malaysia during pregnancy and puerperium:

a. Fondaparinux Sodium

Fondaparinux (trading name Arixtra) sodium will be elaborated in detailed as this novel synthetic Penta saccharide may be extensively used as VTE prevention and treatment around the world (Doyle et al, 2013) and also recommended by MCMKI in 2009.

Property of Fondaparinuxas the only selective inhibitor of Factor Xa has been approved in the usage of treatment and prevention of thrombosis globally (Turpie, 2008). It is started to be on the market in the USA and Europe around 2002 (Liu, Ji et al, 2014). Other than that, Fondaparinux possesses low antithrombin III in which its efficacy is affected for pregnant women who develop VTE (Zhang et al, 2019).

Fondaparinux Sodium sometimes called Ultra Low Molecular Weight Heparin (ULMWH) due to its smallest molecular compared to heparin and LMWH which about 1,728Da (Nur Zaireena et al, 2018).

As it is unnatural compound preparation, Fondaparinux is not metabolized or processed in the body as it is a synthetic anticoagulant, even it requires mainly excretion from the kidney. A report about incidences of bleeding amongst of the non-pregnant patients whom receiving Fondaparinux either in the case of DVT or PE with normal function 3.0% (34/1, 132), mild renal impairment 4.4% (32/733), moderate renal impairment 6.6% (21/318) and severe renal impairment were 14.5% (8/55) (Aspen, 2014).

In pregnancy as these women are hypercoagulable, using this type of anticoagulant among women with kidney dysfunction may predisposes to renal excrement problems and thus leads to higher risk as the medication is not effectively excreted leading to accumulation in the body and further complication (Nurzaireena et al., 2018).

1. **Advantages of Fondaparinux in Thromboprophylaxis during Pregnancy:**

Fondaparinux is, indeed, controversial during pregnancy period for VTE prevention and therapeutic even though it is free from animal derivatives, but it might be used as an alternative from the class of anticoagulant for pregnant women with known severely heparin-intolerant (Petitou et al., 2002).

Although currently the literature regarding Fondaparinux in pregnancy is rather scarce, the results from the retrospective and cohort studies proved Fondaparinux usage safe and efficacy alternative particularly to those who develop adverse reactions toward LMWH such as urticarial rash, a type I immediate hypersensitivity reaction, with skin necrosis due to vasculitis (type III Arthus reaction)(Mazzolai et al., 2006) or heparin-induced thrombocytopenia (HIT) and mechanical heart valve, (Schindewolf et al., 2013, Yaqoob et al, 2014, Ciurzyński et al., 2011). Yet, that data remains limited either as VTE prophylaxis or therapeutic treatment during pregnancy and postnatal periods (Liu et al., 2014).

GlaxoSmithKline (GSK), a company that produces Fondaparinux (Arixtra) stated clearly that regarding the result obtained from pregnant rat experiment and rabbit which injected 10mg/kg/day with Arixtra with 32 times and 60 times as recommended for human doses, respectively showed had no harm effects to the fetus, yet there no adequate and well-controlled studies on pregnant women (GlaxoSmithKline, n.d.).

Other studies stated that no cord blood transplacental crossing placenta barrier associated with fondaparinux (Doyle et al., 2013, Mazzolai et al., 2006, Lagrange et al., 2002).

2. Disadvantages of Fondaparinux as Thromboprophylaxis Agent in Pregnancy.

In pregnancy, fondaparinux is commonly used as second line to overcome patients with heparin allergy. However, in contrast to heparin or LMWH, Fondaparinux did not inhibit thrombin and selectively binds to antithrombin III and does not bind significantly to other plasma proteins including platelet Factor 4 or red blood cells. This mechanism of action of fondaparinux has no known effect on platelet function (GlaxoSmithKline (GSK), n.d.).

Despite a preliminary data are reassuring on its safe and efficacy upon pregnant women due to hyperallergic to heparin, proof of its safety in pregnant women are very much awaited (Turpie, 2004) and meticulous care should be taken into account with high-index degree when using Fondaparinux as prophylaxis or therapeutic treatment in dealing VTE patients during pregnancy (Liu et al., 2014).

According to Doyle et al' study, out of 15 women who exposed to fondaparinux, 10 of them went through healthy delivery without any risk and 5 of them were complicated in the course of pregnancy and postpartum such as miscarriage, termination of pregnancy, fetal abnormalities, premature spontaneous rupture of membranes at 22 weeks, cord prolapse (Doyle et al., 2013). Even though Doyle et al do not believe that complications were the result of Fondaparinux, those result can be escalating disadvantages for Fondaparinux currently and concurrently as result of it passing

through cord blood in vivo (Dempfle, 2004). Overall, of inconsistencies results regarding transplacental cord blood coupled with limited safety profile, the researcher opined that Fondaparinux regime only prescribed by clinician with reasonable and thorough justification.

Moreover, the intake of Fondaparinux shall not prelude without scrupulous monitoring because it is given parenterally and it does not possess any specific antidote or reversal agent due to occurrence of disadvantage like bleeding as compare to LMWH and heparin (Bauer, 2016). Furthermore, Fondaparinux poses disadvantage due to unknown evidence of its presence in human breast milk excreted as evidence shows that it is excreted in pregnant rat's milk in the laboratory (Aspen, 2014).

The least thing to be considered in managing the feasibility and accessibility of Fondaparinux concerning about its cost effective (ZiziAzlinda, 2019). The price of Fondaparinux in Malaysia is considered expensive compared to LMWH and heparin, thus, becomes a burden for authority to provide it and inaccessible for patients with lower socioeconomic status. The price list can be viewed in appendix list. Feasibility and accessibility play an important role in medical management too, hence Fondaparinux is less favorable except in exempted cases supervised and decided by clinicians.

The researcher had clarified the limited potential of Fondaparinux or Arixtra as agreed by numerous literatures such as Nurzaireena et al (2018), Bauer (2016) and the Fondaparinux manufacturer itself, GlaxoSmithKline (GSK), (n.d.), they also do prefer to prioritize natural source of anticoagulant such as LMWH rather than Fondaparinux due to limitation of usage among renal impairment patients, its long half-life and potential presence in breastmilk after delivery. Supported by data collected from participants of this research, all of them do prefer to prescribe LMWH as first choice

for pregnant and puerperium women as it favours less complications to mothers and fetuses as below:

S2 (2019)	*"Okay, let's talk about Arixtra la ya. The problem with Aritra is there is no research in pregnant women. So, we don't know how effective it in pregnant women is. In non-pregnant women, they have the data. Number two, it crosses the placenta. It also crosses the milk, so when it crosses placenta...we dont know what will happen to the baby la, because low molecular weight, it doesn't cross the placenta. So, whatever you inject, it won't get to the baby. so even though the dose is small, The Arixtra does cross the placenta and goes to the baby but whether it going to cause bleeding or not, I have no idea. So, I don't dare to use it because there is no data. you can get sued if something happens to the baby and you say Arixtra causes it, and because it's not approved for use, so it risky la ya, you know for the doctors. For post delivery, it crosses little bit to the milk lah. But, what effects on the baby, I dont have any idea probably it's okay, but I dont know."*
S7(2019)	*"Yes, Fondaparinux is not safe for pregnant woman and the producer company of Fonda itself claims that they do not recommend it during pregnancy."*
S6 (2019)	*"Fondaparinux differs its size which is smaller around 1,700. Consequently, it can cross the placenta. That's the risk which questioned why Fondaparinux is used for pregnant women. And, if bleeding occurs, it's hard to treat it. However, it's rare occurrence. Those based on theory and study cases lah…"*
S1 (2019)	*"Arixtra is expensive if you compare with low molecular weight heparin. But, the problem with Arixtra is, if seek in literatures wholly, the safety profile is not found,"*

Based on that foregoing literatures and data from interviewees, most medical doctors agreed to say that Fondaparinux is not the first choice of anticoagulant to be given to mothers who area at risk of VTE except those who are hyperallergic to heparin sources (MOH, 2013).

Thus, based on the data, it has apparently proved that Fondaparinux has some criteria such as no effect on factor IIa (thrombin), no affect aPTT, long half-life around 17 hours, non availability of antidote agent thus making it not listed as the top newer

anticoagulant in pregnancy and puerperium even though it creates no spark of controversial issue related to the sources.

A study have suggested that Fondaparinux does not cross placenta (Gibson & Powrie, 2009), however more literatures emphasized that Fondaparinux may cross placenta as similar as vitamin K antagonists, oral direct thrombin, and FXa inhibitors (for instance, dabigatran, apixaban, edoxaban, and rivaroxaban (Bates et al., 2018).

b. Unfractionated Heparin (UFH)

For the last few decades, heparin which is a well-known anticoagulant have been used for treatment for patients with hypercoagulation and thrombotic problems including in pregnancy and puerperium. There are two types of heparin base anticoagulant; unfractionated heparin (UFH) and low molecular weight heparin (LMWH) (Bates et al., 2012). However, in this research, the term of heparin refers to Unfractionated Heparin (UFH). UFH is "an anticoagulant, a heterogeneous group of anionic, sulfated glycosaminoglycans" (*Heparin Sodium*, n.d.).

Heparin was found in 1916 by Jay McLean, a second-year medical student at Johns Hopkins University(Badkundri et al., n.d.)and started to be utilized in medical field widely in 1934. Heparin origins from animal preparation either porcine or bovine or sometimes from sheep for the countries where religion restricted to porcine or bovine used for antithrombotic agent more than 50 years age (Guerrini et al., 2001).

Heparin had been used as thromboprophylaxis and therapeutic treatment during pregnancy. Subsequently a LMWH later was produced which has a lower molecular structure with less bleeding tendencies. TheRCOG (2015) and MOH (2013) highly recommend to use LMWH due to its superiority in efficacy dealing with obstetric VTE.

Heparin is used in medical field as anticoagulant, preventing the occurrence of blood clot in venous system of body particularly when the pregnancy is often engaged with thrombotic state and higher complication and escalating morbidity and mortality. Concurrently our study targeting the pregnant and puerperium women as a subject of VTE. UFH can be administered through the intravenous (IV) or subcutaneous route twice daily (Stromich, 2010). Heparin also able to bind to antithrombin III and play role in anticoagulant activity as well within AT-III which can interact with coagulant enzymes, such as thrombin and factor Xa (FXa) (Liu et al., 2014). In another word, heparin allows the natural clot in the body to break down the formed clots normally.

The ability of UFH, indeed can inhibit fibrin formation and thrombin-induced activation of platelets and factors V, VIII, and XI (ThrombosisCanada, 2013). Treatment with UFH critically requires initial monitoring of 24-48 hours, otherwise it will lead to inadequate treatment and predisposes to recurrent VTE or worse death. In addition to that, the monitoring must include a baseline blood count and periodic of platelet monitoring is 2-3 days (ThrombosisCanada, 2013). Due to unpredictable sensitivity to heparin compound close monitoring is essentially required during pregnancy and puerperium (Zaki et al, 2019).

Being a natural source of heparin, UFH usage may complicates with bleeding in which it is reversible through protamine sulfate as the antidote. Almost 1mg of protamine sulfate able to neutralize 100 units of heparin while dosage varies depending on the duration either through subcutaneous or intravenous (Dhakal et al., 2017).

1. Advantages of UFH as Thromboprophylaxis Agent in Pregnancy.

In spite of UFH is widely replaced by LMWH today the usage of UFH in VTE management (Thrombosis Canada, 2013) is still regarded as a need due to cheaper cost

effective, accessibility in some countries and in cases of massive embolism (Bauer, 2016, Casele, 2006). Even though LMWH is preferred for prevention and treatment of VTE during pregnancy, there are literatures recommendedUFH more than LMWH due to its cheaper cost (Jacobs et al., 2017). Hence, many literatures suggested that the usage of heparin class of anticoagulants either UFH or LMWH in prevention and therapeutic treatment compared to Fondaparinux sodium. In fact, both LMWH and UFH has no transplacental trace and no harmful effect to fetus reported (Wells et al, 2018).

Zaki's (2019) study on the use of UFH with anti-Xa-based protocol in monitoring UFH level among the pregnant women on therapeutic treatment within 24hours, and revealed a very high percentage at 88% level in the blood for treatment. His findings further supports Rosborough & Shepherd (2004) study which showed that the ability of UFH to reach therapeutic treatment in pregnant women within 24 hours. In another hand, the price of UFH is amongst of the cheapest price and affordable compared to Fondaparinux and LMWH. The price is attached in appendix to be referred.

2. Disadvantages of UFH as Thromboprophylaxis Agent in Pregnancy.

A known serious short comings of UFH usage is major bleeding risk due to the existence of higher anti IIa in it, (Abdel Qader et al, 2018). Variability of bleeding reaction might occur between patients if the UFH treatment is overdose or underdose (Stromich, 2010). Approximately 5.5% bleeding complication occurs with intravenous UFH compared to LMWH with range 2% of bleeding. Therefore, a close monitoring should be seriously practiced especially when the patients is pregnant or post delivery and in need to use UFH as anticoagulant (Dhakal et al., 2017).

Prolonged UFH therapy either for prophylaxis or therapeutic treatment associate with maternal adverse effects, mainly the reduction of bone density and risk for

osteoporosis which is as the other less common side effect of UFH. Osteoporosis is a bone disorder poses an increased risk of fracture caused by insufficient bone mineral density and microarchitectural decline of bone tissue (Hawkins et al, 2005).

An animal experiment in non-pregnant rats for 32 days showed that UFH cancause osteoporosis and reduce lumbar spine bone density during postpartum, as compare to no changes found in lumbar spine bone density in normal pregnancies without UFH usage (Ogueh et al, 2009, Muir et al., 1997)

Among of the main limitations in pregnancy with regard UFH as anticoagulants are its inconvenient dosing which must consumed at least twice daily when given subcutaneously every 8 or 12 hours (Verstraete, 1990). The preparation was not in pre filled syringe, making it less convienient and may predispose to wrong dosing served. Although, Heparin induce thrombocytopenia (HIT) is uncommon during pregnancy, it is deemed adverse effect due to the usage of heparin compound either UFH or LMWH. In non-pregnant case, the occurrence of HIT poses approximately 2.7%, although limited incidence in pregnancy, it should be observed (Gibson et al, 2009, James, 2009).

c. Low Molecular Weight Heparin (LMWH)

For over a decade, LMWH such as Clexane is used in the prevention of blood clots as well as treatment of venous thromboembolism (VTE) during pregnancy and puerperium(Cox et al., 2019). In the global dimension, there have been numerous researches established to examine and investigate the effectiveness of anticoagulated medications including Low Molecular Weight Heparin (LMWH) is a class of anticoagulant medication either to prevent from blood clotting or to resolve the diagnosed blood clotting.

LMWH such as Enoxaparin Sodium (Clexane) is used for anticoagulated VTE disease that could be manifested as deep vein thrombosis (DVT), pulmonary embolism (PE), in the treatment of myocardial infarction and stroke (Bath et al., 2000). Enoxaparin Sodium comes as Clexane and Tinzaparin (Innohep) the brand name in Malaysia. There is a range of LMWH types, however, this research will focus on Enoxaparin Sodium (Clexane) as a case study towards pregnant and puerperium women in Malaysia.

LMWH is originally obtained from various methods whether fractionation or depolymerization of polymeric heparin. However, current preparation has not by merely fractionation, even though early work on LMWH used fractions rather than depolymerized by fragments (E. Gray et al., 2008). Several method of partial depolymerization are used in preparation of Enoxaparin (Clexane) (Linhardt & Gunay, 1999).

LMWH such as Enoxaparin Sodium or Clexane naturally from the class of heparin but its Dalta (Da) molecule decreased into lower molecular weight heparin, heparin's molecule has 12,000da-15,000da but the LMWH are smaller 4,500da since average molecule of Enoxaparin or Clexane is in between 3,800da to 5000da while the ratio of anti-factor X_a activity to anti-factor II_a activity is between 3.3 to 5.3 (Pharmacopeial, n.d.).

Enoxaparin sodium such as Clexane gained by alkaline depolymerization of heparin benzyl ester and the raw material of it is obtained from porcine intestinal mucosa. Enoxaparin sodium like Clexane consist of a complex set of oligosaccharides that have not yet been completely characterized (Pharmacopeial, n.d.).

LMWH is subcutaneously injected just under the skin of the patients. Enoxaparin mechanism of action binds to antithrombin which known as a circulating

anticoagulant to form an inactively clotting factor, Xa. That process does not bind to the platelet of suggested dose with which gives low complication of bleeding (Nur Zaireena et al., 2018).

1. **Advantages of LMWH**

LMWH has been associated with fewer side effects than unfractionated heparin. LMWH is actually produced from UFH undergoing enzymatic and cleavage process with nitrous acid and benzylation after alkaline depolymerization of UFH (H. L. Casele et al., 1999), it approved by numerous research that it offers a greater margin of safety when LMWH does not cross the placenta in any trimester (H. L. Casele, 2006).

Furthermore, LMWH has less bleeding effect due to its capability to reduce anti-IIa activity compared to anti-Xa activity and less inhibition of platelet function (Sakai et al., 2019), more predictable response, a lower risk of heparin-induced thrombocytopenia and less risk of bone loss.

Other than that, thromboprophylaxis with LMWH had significantly lower bruising scores as compared to the UFH group(H. Casele & Haney, 2005, Abdel-qader et al., 2018). LMWH also has a potential of predictable response (James et al, 2006) and less frequent dosing and at most twice per day only for treatment dose (Solari & Varacallo, 2014).

Studies shown that the usage of LMWH is indeed less likely to cause bone problem called osteopenia and osteoporosis than UFH. Long term LMWH treatment also had been studied in non-pregnant women and resulted similar finding which is less effect of bone density loss (Hawkins & Evans, 2005).

Another advantage of LMWH is its administration is not difficult as UFH

administration, self-administration is easy and no monitoring of the clotting factors required. Needless to say, the usage of LMWH can be safely administered as outpatient (*LMWH*, 2017). The following are the steps and procedure on how to inject with using LMWH, which can be found on the label of Enoxaparin Sodium prescription letter.

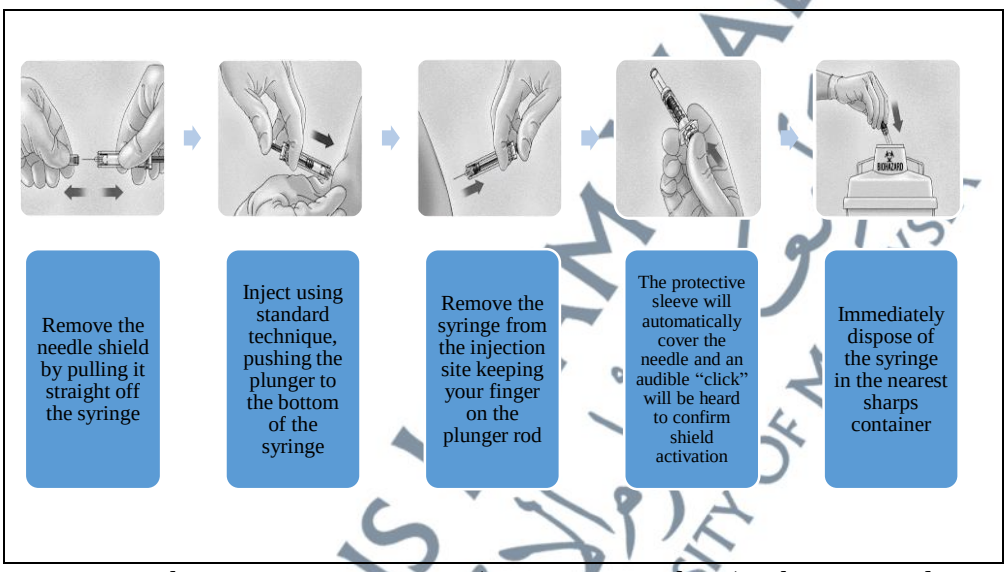

Figure 2.5: The steps to use LMWH (Enoxaparin sodium) subcutaneously (NDClist, n.d.)

1. **Disadvantages of LMWH**

To date, any medications use to treat patient prescribed by the clinicians are based on their indication, evidences of effectiveness, including other significant factors such as safety profile, accessibility and feasibility. However, due to man-made productions, all medication including LMWH has its own disadvantages which should be considered prior to prescription to the patients. Among of disadvantages LMWH over UFH is half-life of LMWH is longer than UFH with 3-4 hours while UFH half-life is shorter than that with only one hour (Akhtar et al., 2018).

This pharmacokinetic feature of LMWH may contribute problematic situation during imminent delivery time. The most appropriate anticoagulant for those who are

in the last month of pregnancy is switching from LMWH to UFH (Devis & Knuttinen, 2017).

However, this activity of longer half-life can reverse with limited effect of protamine sulfate compared to UFH. Sufficient protamine sulfate provides a reversing action, stemming from LMWH pharmacokinetic feature which is shorter polymer than UFH. Apart from that, its interaction with Xa factor is more than antithrombin while protamine sulfate less effective at reversing Xa factor than antithrombin (Thomas & Makris, 2018).

Further, LMWH has inadequate capability in management of VTE patients including pregnant or puerperium women whom have high risk of hemorrhage includes major antepartum hemorrhage, coagulopathy, progressive wound hematoma, suspected intra-abdominal bleeding and postpartum hemorrhage, in which intravenous UFH are more preferred (MOH, 2003).

In term of clearance mode, LMWH is not suitable for patients with kidney problems due to its renal excretion predominantly. Thus, the usage of LMWH is less preferred toward renal patients for clexane, as compare to the tinzaparine whereby a renal adjusted dose is available. Consultation and supervisions from clinicians are sought in this condition to avoid harmful effect to the patients especially pregnant mothers as those who requiring anticoagulation prescription throughout the pregnancy and puerperium (Alshawabkeh et al., 2016).

Thus, LMWH usage shall be taken as precaution for those who have health problems like active gastritis or duodenal ulceration, hypersensitive to enoxaparin sodium or heparin derivatives, patient with history of heparin-induced thrombocytopenia with or without thrombosis. If there is confirmed decreasing value of

platelet level after using LMWH it shall be discontinued and swapped to another choice of anticoagulant (Aventis Pharma Limited, n.d.).

i. Pharmacokinetic Features Compare between UFH, LMWH and Fondaparinux

Based on the pharmacokinetic features of LMWH over UFH and Fondaparinux, LMWH appears to be in the first line of anticoagulant choice during pregnancy in most hospitals worldwide. Following is the comparative table shows the different features between them.

Table 1.7: Pharmacokinetic features compare between UFH, LMWH and Fondaparinux (Nutescu et al, 2016)

FEATURES	UFH	LMWH	FONDAPARINUX
Source	Biology	Biology	synthetic
Molecular weight (Da)	15, 000	5000	1500
Target	XIIa, IXa, XIa, Xa and IIa	Xa>IIa	Xa
Bioavailability (%)[a]	30	90	100
Half-Life (h)	1	4	17
Monitoring test	aPTT, Anti-Factor-Xa	Anti-Factor-Xa	Anti-Factor-Xa
Renal excretion	No	Yes	Yes
Antidote	Protamine	Protamine	None
Incidence of HIT (%)	>5	<1	Unreported

Indication: Da Dalton, h hours, HIT heparin-induced thrombocytopenia, LMWH low molecular weight heparin [a] Following subcutaneous injection

Based on the Table 1.7, LMWH viewed capable to work effectively due to its properties than the rest.

4.3 Conclusion

Research by Greer & Nelson-Piercy (2005) reported that in 61 studies involving 2603 pregnancies which recruited thromboprophylaxis with LMWH, there was no maternal death occurrence. Another study done by Barbar et al (2010) without mentioning the type of anticoagulant of thromboprophylaxis, VTE developed in four of the 186 patients and 31 of the 283 patients who did not receive thromboprophylaxis. Meanwhile, it was reported that bleeding occurs in three out 186 among high risk patients who had thromboprophylaxis.

The researcher also informed by the participants that thromboprophylaxis with LMWH specifically Enoxaparin, indeed not guarantees 100% to get to zero reduction of maternal death, instead the percentage of reducing maternal death is significantly around 70% to 80% reflecting its efficacy. Following are the data from interviewees who supported this finding:

S8 (2019)	"*Prophylaxis with low molecular weight heparin is not 100% to be effective. Instead, it can reduce the potential of blood clotting for 80%.*"
S2 (2019)	"*In the UK, when they did the assessment, only 70% has risk factors. The women that died from pulmonary embolism. So, Malaysia is even higher,90% that's means you can screen them and if you can screen them and give thromboprophylaxis, then you can prevent 70% of death. I'm not saying you can prevent 100%, there are women you give thromboprophylaxis, and they still die because their risk is so highthat dose is not enough.*"
S7 (2019)	*"A research conducted in 1993 which comparing cardiology patient. A group was given conventional heparin and another group was given low molecular weight. As a result, patients treated with low molecular weight heparin have less complication and most likelihood for lifespan, Insha Allah than those who perceived conventional heparin. Based on that research, cardiologists will prioritize low molecular weight heparin over conventional heparin for heart attack cases."*

On a final note, LMWH opted as first line of anticoagulant in treating pregnant or puerperium women who are at risk of VTE without refuting UFH and Fondaparinux

roles. Each anticoagulant required by different cases and women. However, according to the scientific evidences around the world, there is no denial statement pertaining to the benefits of LMWH upon high-risk women and moderate risk women around obstetric VTE considerably.

SHARIAH PERSPECTIVE: THE PRINCIPLES FROM *FIQH* PERSPECTIVE TOWARD THROMBOPROPHYLAXIS USING LMWH

4.4 Introduction

A significant amount of discussions related to medication has been concerning the jurists' in the past to date. These discussions are traceable yet scattered under few topic subdivisions rather than merely in a specific title, for example the chapter of food (*kitāb al-aṭʿimah*), chapter of purification (*kitāb al-ṭahārah*), crisis to treat with filth and unlawful sources (*al-iḍtirārilal al-najswalmuḥarram*), medical treatment (*al-tadāwiyy*) and chapter of impurity (*kitāb al-najāsah*). Whilst, in hadith specialization, medical treatment has been embedded in *al-tadāwiyy* matters in *kitab al-Sunan* (Nurazmallail, 2014).

4.5 Definition of Medical Treatment (*Al-Tadāwī*):

Medical Treatment (*al-tadāwī*) means taking or consuming medication (Ibrahim Anis et al,. 2004) or healing with it (Al-Rāziyy, 1986). The original word of *tadāwī* derived from *dawa – yadwī – dawā´* (دوا´ - يدوي – دوى) denoted as heal as synonym as with *yuāliju* (Ibn Manẓūr, 1883).

Meanwhile, medical treatment for prevention may be translated into precautionary medication denotes to *ʿaqāqīr* (Al-Maany Online Dictionary, n.d.) or Quranic recitation over patient (*ruqyah*) or massaging illness body called *al-tamsīd* (Ibn

Nujaym, n.d.) in Arabic term. In medical treatment of disease, few words linked to *al-tadāwī*, such as cure (*al-shifāʾ*), medical treatment (*al-tatbīb*), nursing (*al-tamrīḍ*), aid (*al-ʾisʿāf*) (Abū Taha, 2007) can also be identified.

Al-tadāwī from terminology context could be comprehended as detecting the causes of physical or psychological disease. On the other hand, it is called taking appropriate medication to diagnose, alleviate or prevent the patient diseases (Al-Khalīl, 2013).

4.6 Medical Treatment from Islamic *Fiqh* Scholars'Views

Islamic *Fiqh* scholars differ into four opinions with regard the law of taking medical treatment for illness as following:

4.6.1 First school of Thought: Permissible (*Ibāḥah*)

Hanafite such as Abū Yusuf and Muḥammad (Ibn Nujaym, n.d.), Malikite (Al-Abdūsiyy, 1994) held the opinion of taking medical treatment as permissible upon sick person. The Jurists identified had a common consensus of agreement with this school of thought as it does not deemed as sinful upon those who take remedy; based on Prophet's permission upon the resident of ʿArayan whom had presented with a disease to seek treatment using camel's urine (Ibn Nujaym, n.d.). Some hadiths supported that opinion mentioned that:

عَنْ جَابِرٍ عَنْ رَسُولِ اللَّهِ صلى الله عليه وسلم أَنَّهُ قَالَ "لِكُلِّ دَاءٍ دَوَاءٌ فَإِذَا أُصِيبَ دَوَاءُ الدَّاءِ بَرَأَ بِإِذْنِ اللَّهِ عَزَّ وَجَلّ" .

Narrated from Jabir bin Abdullah (May Allah be pleased with both of them) that the Messenger of Allah (PBUH) said: "Every illness has a cure, and when the proper cure is applied to the disease, it ends it, Allah will,"

(Hadith. Muslim. Kitāb al-Salām. Bāb li kulli dāʾin dawāʾ:#69)

The above mentioned hadith clearly supports and allows Muslims to seek the remedy for every ailments and illness. The hadith does not attribute to the encouragement virtue, yet, the Allah's Messenger allows the companions to seek medication whenever be in illness state.

4.6.2 Second school of Thought: Encouraged (*Istiḥbāb*)

Shafi'ite and Hanabilite sects prone to that opinion which saying, it is encouraged to seek for medical treatment for illness.

عَنْ أَبِي الدَّرْدَاءِ قَالَ قَالَ رَسُولُ اللَّهِ صلى الله عليه وسلم " إِنَّ اللَّهَ أَنْزَلَ الدَّاءَ وَالدَّوَاءَ وَجَعَلَ لِكُلِّ دَاءٍ دَوَاءً فَتَدَاوَوْا وَلاَ تَدَاوَوْا بِحَرَامٍ " .

> Meaning: "From Aba al-Darda´(May Allāh be pleased with him) said: Allah has created disease and cure, and created each disease has its own cure, hence seek the remedy and do not cure with forbidden (medication),"
> (Hadith. Abū Dāud. Kitāb al-Ṭib. Bāb al-Adawiyyāt al-Makrūhah):Juz'6 #3874

That hadith indicates the encouragement to seek the medical treatment as Allah creates the disease and the cure too. At the same time, the hadith affirms the prohibition to seek medication with forbidden ingredients because the forbidden substance must have some degree of harmful effect associated with it, which actually reflects the causes of the prohibition.

4.6.3 Third School of Thought: Permissible to receive the medical treatment, yet to leave is better

Some of Hanabilite, among of them Al-Imām Ibnu Taymiyyah chose this stance which saying that seeking medical treatment is permissible, yet, to leave is better due to *tawakkal* to Allah. This group believes in hadith as following:

قَالَ حَدَّثَنِي عَطَاءُ بْنُ أَبِي رَبَاحٍ قَالَ قَالَ لِي ابْنُ عَبَّاسٍ أَلاَ أُرِيكَ امْرَأَةً مِنْ أَهْلِ الْجَنَّةِ قُلْتُ بَلَى. قَالَ هَذِهِ الْمَرْأَةُ السَّوْدَاءُ أَتَتِ النَّبِيَّ صلى الله عليه وسلم فَقَالَتْ إِنِّي أُصْرَعُ وَإِنِّي أَتَكَشَّفُ فَادْعُ اللَّهَ لِي.

قَالَ إِنْ شِئْتِ صَبَرْتِ وَلَكِ الْجَنَّةُ وَإِنْ شِئْتِ دَعَوْتُ اللَّهَ أَنْ يُعَافِيَكِ ". فَقَالَتْ أَصْبِرُ. فَقَالَتْ إِنِّى أَتَكَشَّفُ فَادْعُ اللَّهَ أَنْ لاَ أَتَكَشَّفَ فَدَعَا لَهَا.

Meaning: "Narrated from ʿAṭāʾ bin Abī Rabaḥ from Ibn ʿAbbās said to me, "Shall I show you a woman of the people of Paradise?" I said, "Yes." He said, "This black lady came to the Prophet (PBUH) and said, 'I get attacks of epilepsy and my body becomes uncovered; please invoke Allah for me.' The Prophet (PBUH) said (to her), 'If you wish, be patient and you will have (enter) Paradise; and if you wish, I will invoke Allah to cure you.' She said, 'I will remain patient,' and added, 'but I become uncovered, so please invoke Allah for me that I may not become uncovered.' So, he invoked Allah for her."

(Hadith. Al-Bukhāriyy. Kitāb al-Marḍā. Bāb Faḍl Māʿalā Yusrāʿ: #5652)

The hadith indicates clearly that it is better to bear the sick patiently as the patient is a sign of *tawakkal* to Allah. This hadith also highlights the value of patient attitude in a prolonged hardship situation means accepting and trusting in the fate that Allah assigns to upon us.

4.6.4 Fourth School of Thought: Incumbent (*Wājib*) for Seeking Medical Treatment

Zahirite sect (Ibn Ḥazm, 2003) opined the view of incumbent for seeking medical treatment based on Quranic verse and hadith text as following:

Quranic verse mentioned:

وَلَا تَقْتُلُوٓاْ أَنفُسَكُمۡۚ إِنَّ ٱللَّهَ كَانَ بِكُمۡ رَحِيمٗا ٢٩

Meaning: "and do not kill your people; surely Allah is Merciful to you."

(Al-Quran. Al-Nisā' 4: 29)

Resting on the aforementioned Quranic verse, it is clearly to forbade Muslims from plunging themselves into the state of death, therefore, obtaining medical attention is considered to be the obligatory over ill persons.

Hadith text enunciated:

عَنْ زِيَادِ بْنِ عِلاَقَةَ عَنْ أُسَامَةَ بْنِ شَرِيكٍ قَالَ أَتَيْتُ النَّبِيَّ صلى الله عليه وسلم وَأَصْحَابُهُ كَأَنَّمَا عَلَى رُءُوسِهِمُ الطَّيْرُ فَسَلَّمْتُ ثُمَّ قَعَدْتُ فَجَاءَ الأَعْرَابُ مِنْهَا هُنَا وَهَهُنَا فَقَالُوا يَا رَسُولَ اللَّهِ أَنَتَدَاوَى فَقَالَ: " تَدَاوَوْا فَإِنَّ اللَّهَ عَزَّ وَجَلَّ لَمْ يَضَعْ دَاءً إِلاَّ وَضَعَ لَهُ دَوَاءً غَيْرَ دَاءٍ وَاحِدٍ الْهَرَمُ " .

Meaning: "Narrated I came to the Prophet (PBUH) and his Companions were sitting as if they had birds on their heads. I saluted and sat down. The desert Arabs then came from here and there. They asked: Messenger of Allah, should we make use of medical treatment? He replied: Make use of medical treatment, for Allah has not made a disease without appointing a remedy for it, with the exception of one disease, namely old age."

(Hadith. Abū Dāud. Sunan Abī Dāud. Kitāb al-Ṭib. Bāb al-Rajul Yatadāwā:#3855)

4.6.5 The Preferred (*Tarjīḥ*) Opinion:

Above all forwarded proofs either from Al-Quran or hadiths, the researcher appears to hold the approach where all Muslims permitted to seek remedy for the diseases due to the ultimate proof from Al-Quran which supported by hadiths that advocates Muslims not to purposely throw themselves into ruin by allowing himself or herself to perish in the condition of sickness, as above mentioned. If the person ruins themselves in sickness, this will lead to a critical health state in a society and futher endanger human life, simultaneously denying the *ḥifẓ al-nafs* as advocated in *maqāṣid al-sharīʿah*. The prohibition in the Al-Quran to cause their body, mind, emotional into devastating state clarified as follows.

وَلَا تَقْتُلُوٓاْ أَنفُسَكُمۡۚ إِنَّ ٱللَّهَ كَانَ بِكُمۡ رَحِيمٗا ٢٩

Meaning: "and do not kill your people; surely Allah is Merciful to you."

(Al-Quran. Surah Al-Nisā; 4: 29)

However, even though Surah Al-Nisa' verse 29 forwarded by the thought of incumbent legal rule to seek the medication, however, the researcher prefers to choose the *ibāḥah* legal rule in order to balancing the other *dalīl* from second, third and fourth

school of thought. This line of thought further reinforced by a report by Fitriah Wardi (2015) that medical care is permissible (*ibaḥah*).

4.7 Ruling of Consuming Porcine Derivative Medicine in Health Treatment

The connotations of *al-muḥarramat* and *al-najāsat* are two divergent entities, all religiously known as prohibition. As a Muslim, both entities influence their everyday life, particularly when it refers to the matter involving the prayer, food and beverage, clothing and medical care needs, chores and interactions.

In terms of common and unique circumstances, *al-muḥarramat* and *al-najāsat* differ significantly. All *al-najāsāt*, yes, is *al-muḥarramāt*, but not all *al-muḥarramāt* falls in *al-najāsāt* (Bakro, 2013). It is possible to explain *al-muḥarramāt* as general and *al-najāsāt* is a subdivision of *al-muḥarramāt*. Furthermore, *al-muḥarramāt* covers all following examples such as forbidden animals to be consumed in Islam, prohibited acts to be carried out in Islam such as inequality, tyranny, paganism, polytheism and similar.

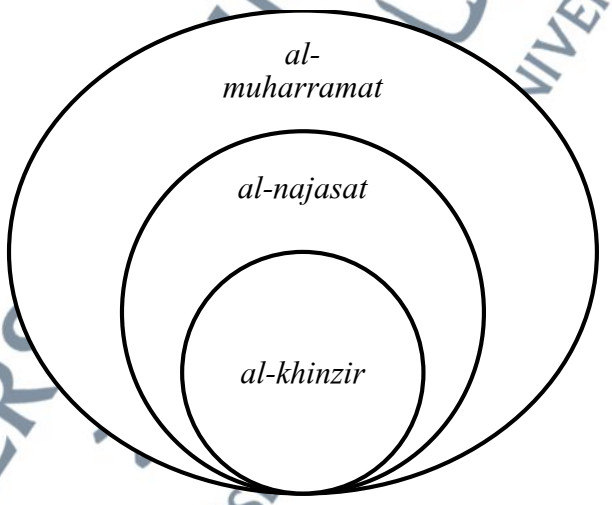

Figure 2.6: The component of *al-khinzīr* in *al-najāsāt* and embedded in *al-muḥarramāt*.

The figure 2.6 could be pronounced as the summary of *al-muḥarramāt* concept. The figure shows the position of porcine in *al-najasah* component and both embedded in the definition of *al-muḥarramāt* in Islam basically. Generally, porcine judged as *al-*

najasah and the principle of using *al-najasah* is prohibited in any manner neither food or beverage nor any medicinal substances.

While *al-ḥaram* means prohibit (*al-manʿu*) and emphasis (*al-tashdid*) (Ibnu Faris, 1979). *Al-ḥaram* and *al-muḥarram* both derived from similar triliteral semitic root *ḥa-ra-ma*. *Al-ḥaram* grammarly known as 'the likeable adjective with the name of the subject' (*sifah al-mushabbah bi ismi al-fāʿil*) and its verb is *ḥaruma*. Meanwhile, *al-muḥarram* is object (*mafʿul bihi*) and its active verb is *ḥarrama*. In *fiqh* terminology, *al-ḥaram* means 'any action asked by religion to be left in a force acquire' (*mā ṭalaba al-sharʿu tarakahu ṭalaban jāziman*) (Ibnu Juzai, 2002). Whoever committing with the prohibitions, one will be dispraised out of that sinful (Al-Shawkāniyy, 2000).

Al-ḥarām is divided into two sections; first, prohibited for its visibility (*al-ḥarām li dhātihi*). Second, prohibited for other reason (*al-ḥarām lighairihi*) (Kāfiyy, 2004). The examples of the events that had been authorized to render *al-muḥarramāt* and *al-najāsāt* in *ḍarūrah* situations includes treating the ailments with camel urine (*al-ḥarām li dhātihi*), treatment with silk cloth, gold nose and seeing women' *awrah* in time of emergency (*ḥarām li ghayrih*) are allowed for treatment purposes as it directly related to the preservation of lives.

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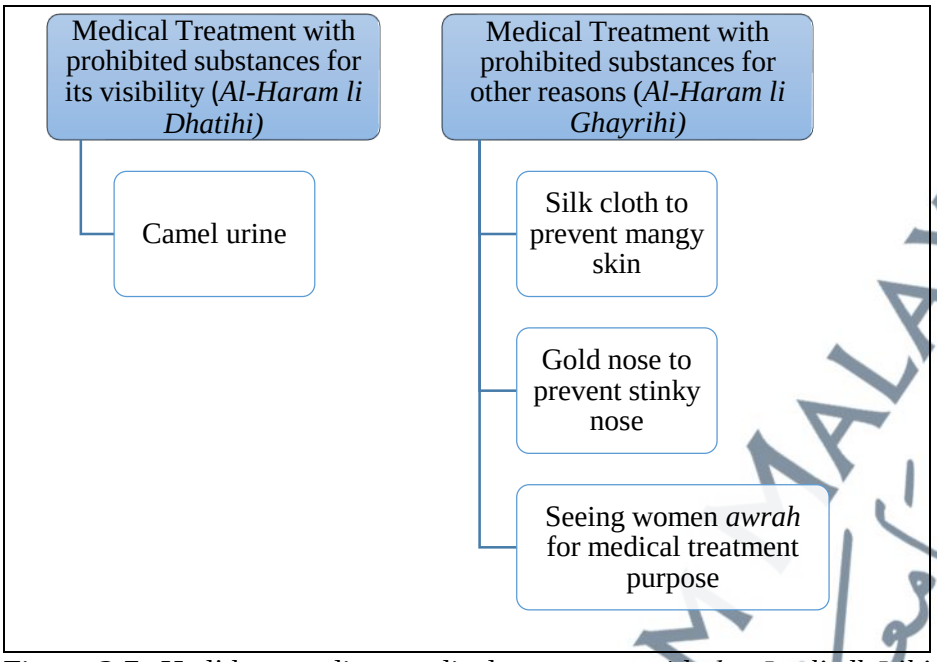

Figure 2.7: Hadith regarding medical treatment with *ḥarām li dhātihi* and *ḥarām li ghayrihi* (Researcher's illustration from Mohd Hapiz's study in 2016)

According to the figure 2.7, each case has authentic hadith explaining about the medical treatment with *al-ḥaram* or *al-muḥarram* for instance, medical treatment for his hygienic need as in the case of mangy man in the time of Prophet (PBUH).

عَنْ أَنَسٍ رَخَّصَ أَوْ رُخِّصَ لِحِكَّةٍ بِهِمَا

Meaning: "Narrated that Anas (May Allah be pleased with him) said; the Messenger of Allah (PBUH) has allowed Abdul Rahman bin 'Auf and Zubayr bin Al-Awwam to wear silk garments because of skin rash they had".
(Hadīth. Al-Bukhāriyy. Saḥiḥ Bukhāriyy. Kitāb al-Jihād. Bāb Yurakhkhaṣu li al-Rijāl min al-Ḥarīr li al-Ḥakkah: #2922).

Next hadith shows to us about the permissibility of using *muḥarram* in medicine. It is reported that the nose of 'Arfajah bin As'ad was severed on the day of Kilāb, so he replaced a silver artificial nose, but it has consequence which producing an offensive order. As a result, the Prophet (PBUH) ordered him to obtain a gold artificial nose as a substitute.

عَنْ عَبْدِ الرَّحْمَنِ بْنِ طَرَفَةَ أَنَّ جَدَّهُ عَرْفَجَةَ بْنَ أَسْعَدَ قُطِعَ أَنْفُهُ يَوْمَ الْكُلَابِ فَاتَّخَذَ أَنْفًا مِنْ وَرِقٍ فَأَنْتَنَ

عَلَيْهِ فَأَمَرَهُ النَّبِيُّ صلى الله عليه وسلم فَاتَّخَذَ أَنْفًا مِنْ ذَهَبٍ

Meaning: "'Narrated from Abd al-Raḥmān ibn Ṭarafah said that his grandfather ʿArfajah ibn Asʿad who had his nose cut off at the battle of al-Kilāb got a silver nose, but it developed a stench, so the Prophet (PBUH) ordered him to get a gold nose."
(Hadīth. Abū Daud. Sunan Abī Daud. Kitāb al-Khātim. Bāb fī Rabṭi al-Asnān bi al-dhahab: #4232)

In clarifying the issue of authorization of male doctors to see women' *awrah* in *ḍarūrah* situation, it could be acquired from hadith of Abū Balta'ah, Ubayd Allāh bin Rafīʿ whom reported as below:

وَكَانَ كَاتِبًا لِعَلِيِّ بْنِ أَبِي طَالِبٍ - قَالَ سَمِعْتُ عَلِيًّا عَلَيْهِ السَّلاَمُ يَقُولُ بَعَثَنِي رَسُولُ اللَّهِ صلى الله عليه وسلم أَنَا وَالزُّبَيْرَ وَالْمِقْدَادَ فَقَالَ " انْطَلِقُوا حَتَّى تَأْتُوا رَوْضَةَ خَاخٍ فَإِنَّ بِهَا ظَعِينَةً مَعَهَا كِتَابٌ فَخُذُوهُ مِنْهَا فَانْطَلَقْنَا تَتَعَادَى بِنَا خَيْلُنَا حَتَّى أَتَيْنَا الرَّوْضَةَ فَإِذَا نَحْنُ بِالظَّعِينَةِ فَقُلْنَا هَلُمِّي الْكِتَابَ . فَقَالَتْ مَا عِنْدِى مِنْ كِتَابٍ . فَقُلْتُ لَتُخْرِجِنَّ الْكِتَابَ أَوْ لَنُلْقِيَنَّ الثِّيَابَ . فَأَخْرَجَتْهُ مِنْ عِقَاصِهَا

Meaning: "I heard ʿAliyy (Allah be pleased with him), Allāh's Messenger (PBUH) sent me, Zubayr and Miqdād saying: Go to the garden of Khah (Rawḍah Khah) (it is a place between Mecca and Medina a distance twelve miles from Medina) and there you will find a woman is riding a camel. She would be in profession of a letter, which you must get from her. So, we rushed on horses and we met that woman, we asked her to deliver us that letter to us. She said, 'there is no letter with me'. We said, 'either bring out that letter or we would take off your cover. She brought out that letter from (the plaited hair of) her head.'"
(Hadīth. Abū Dāud. Sunan Abī Dāud. Kitāb al-Jihād. Bāb fī Ḥukm al-Jāsus Idhā kāna Muslimān: #2650).

Following this the most important hadith with regard the permissibility of treating illness with unlawful substitutes in *ḍarūrah* time. In the sense of issuing the legal law, leading jurists argued this hadith relying on their own methodologies and resulted in numerous justifications. The hadith is narrated as follows:

عَنْ أَنَسٍ ـ رضى الله عنه ـ أَنَّ نَاسًا اجْتَوَوْا فِى الْمَدِينَةِ فَأَمَرَهُمُ النَّبِيُّ صلى الله عليه وسلم أَنْ يَلْحَقُوا بِرَاعِيهِ ـ يَعْنِى الإِبِلَ ـ فَيَشْرَبُوا مِنْ أَلْبَانِهَا وَأَبْوَالِهَا فَلَحِقُوا بِرَاعِيهِ فَشَرِبُوا مِنْ أَلْبَانِهَا وَأَبْوَالِهَا حَتَّى

صَلَحَتْ أَبْدَانُهُمْ فَقَتَلُوا الرَّاعِىَ وَسَاقُوا الإِبِلَ فَبَلَغَ النَّبِىَّ صلى الله عليه وسلم فَبَعَثَ فِى طَلَبِهِمْ فَجِىءَ بِهِمْ فَقَطَعَ أَيْدِيَهُمْ وَأَرْجُلَهُمْ.

Meaning: "The climate of Medina did not suit some people, so the Prophet ordered them to follow his shepherd, i.e. his camels, and drink their milk and urine (as a medicine). So, they followed the shepherd that is the camels and drank their milk and urine till their bodies became healthy. Then they killed the shepherd and drove away the camels. When the news reached the Prophet, he sent some people in their pursuit. When they were brought, he cut their hands and feet and their eyes were branded with heated pieces of iron."

(Hadīth. Al-Bukhāriyy. Sunan al-Bukhāriyy. Kitāb al-Ṭib. Bāb al-Dawā´ bi Abwāl al-Ibil: #5686)

The key point of the matter in this analysis is *al-muḥarramāt*, which denotes forbidden for its visibilities by religion with a strict prohibition such as urine, wine, porcine, poison and its varieties (Al-Khalīl, 2013).

Although *al-najāsāt* from *fiqh* language means the visibility that is forbidden in Islam. It is not because of which detrimental to others or denies the rights of others, but rather its physical may affect the legitimacy of prayer (Bakro, 2013). In other word, *najasah* means a quantity of material that is clearly capable of invalidating the worship of prayer.

In various references, leading jurists discussed on medical care with *al-najāsāt* in general and treating diseases particularly with forbidden items such as wine, carcass, housefly or piece of cut animal body component and urine. In another hand, *al-muḥarramāt* items which not categorized as *al-najāsāt* unless only for men such as silk garment and gold.

In this respect, not in prophetic time nor in the time of earlier jurists, the porcine body components or porcine derivatives were not used as medical aid. However, in the present time, pharmaceutical industries across the globe found that porcine components able to serve as an effective medical treatment that has been shown to act as an

alternative to restore human health to the vicious diseases, especially in the case of VTE among pregnant and puerperium women.

Disagreements between jurists relating to eating or utilizing any porcine body component such as meat, bone, fur, skin, lard, cartilage adhered to the same debate which are relevant to treatment purposes with exception in the situation of *ḍarūrah* when investigating on this matter (Al-Nawawiyy, 2000, Ibn Munẓir, 1999, Al-Qurṭubiyy, 2006). This consensus offers a clear ground for clarifying the impurity legal law with permissible usage as medical treatment in *ḍarūrah situation.* While the use of porcine derivatives medicine in an optional situation (*ḥāl al-ikhtiyār*) with lower probability of death is non permissible. This stance is necessarily accepted in this faith (*wa huwa al-maʿlūm min al-dīn bi al-ḍarūrah*).

4.7.1 The Legal Rule of Using Porcine Derivatives Medicine in High Risk of Death (*Hālah Al-Darurah*).

Previous leading jurists addressed the legal rule of using unlawful material such as *al-khamr* specifically from Islamic Jurisprudence texts, especially in the chapter of *al-ḍārūrah*. While another concept used in the problem of medical care is to cure diseases with the use of filth that intoxicates drugs known as non-*al-khamr* such as porcine, carcass, and blood.

However, the researcher agrees to name the filth with porcine derivatives to analysis specifically its relevance to this study. In deciding the decision to use medical care substances obtained from porcine in *ḍarūrah* situation, there are two positions among jurists as follows;

4.7.1.1 First Line of View: Permissible to Use Porcine Derivatives Medicine

Some Hanafite sect scholars are of the opinion that it is permissible to obtain care from substance that are impure or filth as cure, provided that Muslim doctors verify that medication can treat the ill and there are no comparable *ḥalāl* substitutes capable of treating it. That said if dying of thirst based on the hadith of 'Uraniyyun who drink milk and urine of camel in suffering condition as mentioned above, *al-muḍṭar* is allowed to quench his thirsty with impure substance.

Based on the aforementioned hadith of 'Uraniyyun citizens, Abū Ḥanīfah and Muḥammad further clarify that the wine is known to be completely pure and only acceptable to be used as medical treatment. This is because their consensus it is direct revealation from Allah based on 'Urraniyyun hadith. However, among the medical experts, most likely unable to prove its full efficacy and ability to remove or heal the illness. Thus, they did not accept the usage unless the disease can be cured hundred percent (Ibn ʿĀbidīn, 2003).

The Shafi'ite sect holds the view that it is permissible to pursue medical care with filth and impure substance for cure, provided that there is no halal substitute to replace it. In fact, porcine derivatives medication is supported by the expertise and experience of doctors and recommended to use it by Muslim doctors (Al-Nawawiyy, n.d.) without putting a provision of certainty to eliminate the ailment like Abū Ḥanīfah and Muḥammad. The stance of permissible held by al-Shāfi'iyyah supported with quranic text as follows:

﴿... فَمَنِ ٱضۡطُرَّ غَيۡرَ بَاغٖ وَلَا عَادٖ فَلَآ إِثۡمَ عَلَيۡهِۚ إِنَّ ٱللَّهَ غَفُورٞ رَّحِيمٞ ١٧٣﴾

Meaning: "… But whoever is forced [by necessity], neither desiring [it] nor transgressing [its limit], there is no sin upon him. Indeed, Allah is Forgiving and Merciful."

(Al-Quran. Surah Al-Baqarah 2: 173)

The opinion is proclaimed to be selected Shafi'ite sect's statement with regard the view points on the medical treatment with unlawful medicine. Other than that stance is evaluated as peculiar (*shadh*) viewpoint. Legal text used by the Shafi'ite sect is hadith to cure disease with urine and camel milk. As with 'Uraniyyun people who suffer of abdominal edema condition caused by stomach ache, so that hadith indicates the permission to consume *najs* or impure items such as urine for health restorative purpose (Al-Bar, 1986).

The researcher justifies that this hadith is identified by Imām al-Nawawiyy to allow health recovery and approves other forms of *al-najāsāt source* by which not intoxicated in treating diseases. It is another crucial point in accepting illicit drugs as treatment yet require monitoring and guidance of medical experts on this subject.

In another way to explain that if there is a condition whereby medical specialist confirms that the porcine base medicine is capable of speeding up the healing process or reconstruction of the health mechanism which is far better as compare to the lawful product as treatment, but associated with bad recovery, therefore Imam al-Nawawiyy recommends opting for permissibility to use on the *al-najāsāt* medical treatment (Al-Nawawiyy n.d.).

In the meanwhile, the Zahirite sect also considered that it is acceptable to obtain impure medical treatment for sickness, including pig meat, carcass, blood or wine (Ibn Ḥazm, 2003). Ibnu Ḥazm claims that medical treatment is considered as permitted and perceived as *ḍarūrah* situation, thus, those prohibited substance are only then known as *ḥalālan ṭayyiban* after their permissibility status for that time.

As mentioned by Al-Nawawiyy before, the Zahirite sect justified the role of using unlawful medicine according to the hadith 'Uraniyyun people who drink camel

urine and milk to eradicate disease resulting from high climate temperatures in their region. Ibn Ḥazam states in clarifying this topic that Allāh, The Al-Mighty made it explicitly, only the *ḍarūrah* situation would exclude Muslims from performing the duties and eating the prohibited items as stated in Al-Anʿām: 119 and Al-Baqarah: 173.

وَقَدۡ فَصَّلَ لَكُم مَّا حَرَّمَ عَلَيۡكُمۡ إِلَّا مَا ٱضۡطُرِرۡتُمۡ إِلَيۡهِۗ

Meaning: "and He has already made plain to you what He has forbidden to you--excepting what you are compelled to,"

(Al-Quran. Al-Anʿām 6: 119)

فَمَنِ ٱضۡطُرَّ غَيۡرَ بَاغٖ وَلَا عَادٖ فَلَآ إِثۡمَ عَلَيۡهِۚ إِنَّ ٱللَّهَ غَفُورٞ رَّحِيمٞ ١٧٣

Meaning: "But whoever is forced [by necessity], neither desiring [it] nor transgressing [its limit], there is no sin upon him. Indeed, Allah is Forgiving and Merciful."

(Al-Quran. Al-Baqarah 2: 173)

Thus, pertaining to aforesaid justification, Zahirite sect prefers to hold and bold the status of permissibility to seeking medical treatment with unlawful sources either foods or beverages in *ḍarūrah* situation if, indeed recognized the efficacy of *al-maytah* or *al-khinzīr* in the treatment.

In fact, Ibn Ḥazm justifies that permissibility rule upon porcine in medical treatment with hadith *saḥīḥ* about *rukhṣah* of wearing silk garment being given to ʿAbdul Raḥmān bin ʿAwf and Zubayr bin Al-ʿAwwām consequential to cure their illness out of itchiness.

The researcher observes many *fiqh* books exemplify the condition of ʿAbdul Raḥmān bin ʿAwf and Zubayr bin Al-ʿAwwām are to wear silk garment in the context of tenacious need or *al-ḥājah tunazzal manzilah al-ḍarūrah* in which the condition is not threatening however it causes chronic suffering.

Therefore, as far as the aforesaid rationale is concerned, the Zahirite sect tends to maintain and bold the status of permissibility to pursue medicinal treatment with unlawful sources of either food or drink in the *ḍarūrah* situation if indeed the effectiveness of *al-maytah* or *al-khinzīr* in the treatment are still recognized.

This is in similar agreement with Ibn Ḥazm whom defends the permissibility rules over porcine usage in medical care specifically as preventive treatment. As preventive treatment also offers treatment or prevention from prolonged suffering referring to the hadith *saḥīḥ* under *rukhṣah* of wearing silk clothing given to ʿAbdul Raḥmān bin ʿAwf and Zubayr bin Al-ʿAwwām following their itchiness and to cure their diseases.

Many *fiqh* books explains the above skin condition by the two companions are considered tenacious need as it is not life-threatening. However, Ibn Ḥazm categorized this condition as similar to *ḍarūrah* situation, thus allowing medical treatment with impure substance. In this case, using of silk garment. Thus, this first opinion is justified by the three recognised *fiqh* sects opting for the permissibility of law, which is automatically valid only as long as it is restricted in the circumstance of *ḍarūrah* situation.

4.7.1.2 Second Line of View: Impermissible to Seeking Unlawful Source of Medicine

Abū Ḥanīfah, cited in Baḥr al-Rā´iq, claimed that it is impermissible to pursue illegitimate sources for medication purposes. First of all, Al-Imām argued that if the milk of permissible edible meat in Islam, such as female donkey (*laban al-atān*), is also forbidden from being consumed and listed as prohibited purity (*al-ṭāhir al-muḥarram*),

then the definite impurity of meat such as porcine is far worse than that. Thus, not to be used in medical practice (Ibn Nujaym, n.d.).

Al-Imām Abū Ḥanīfah's second argument is that medical care with camel urine as mentioned in the hadith is specified in 'Uraniyyun's case only because Allāh's Messenger (PBUH) recommends individuals to treat their abdominal condition merely from Allāh's revelation. In addition, Al-Imām consistently insists that 100 percent (*al-yaqīn*) out of using an illegitimate origin for medication must be confirmed as a provision to cure the disorder.

Al-Imām Abū Ḥanīfah argued that even medical experts never able to reach the level of *al-yaqīn* that the disease will be recovered if unlawful medicinal substances consumed. Abū Yūsuf also supported that legal rule of permissibility in the case of '*Uraniyyun* is absolutely permissible only in the case of *ḍarūrah* state, specifically in this study referring to medical treatment with using unlawful substance.

Some Malikite sect firmly holds the stance of non-permissible of using impure medicine as stated in *Mawāhib al-Jalīl fi Sharh Mukhtaṣar al-Khalīl*. The author, Ḥaṭṭāb clarified that, the usage of *al-najāsāt* with wine and other filth, either for dine-in or medical treatment purpose, it consisted of two versions of opinions. Firstly, wine medicinal substances are argued as impermissible only for oral medicine to use. Secondly, medical treatment with using unlawful base for external purpose diversified into two opinions regarding; First, *makrūh* with wine base medicine. Second, Al-Imām Abū Ḥanīfah argued that even physicians are never able to meet the *al-yaqīn* standard that if illicit medicinal substances are ingested, the illness will be healed. In this respect, Abū Yūsuf also supported that in the case of 'Uraniyyun, only *ḍarūrah is the only* reason allows the use of unlawful substance in medical treatment.

Besides, the status of impure medicine usage is prohibited as mentioned in *Mawāhib al-Jalīl fi Sharh Mukhtaṣar al-Khalīl* is firmly held by some Malikite sect. The author, Ḥaṭṭāb, explained that for the purpose of dine-in or medical treatment, the use of *al-najāsāt* particularly with wine and other filth consisted of two variants of opinions. First, wine medicinal compounds are believed to be inadmissible only for the application of oral medicine. Second, medicinal treatment diversified into two views about the use of an illegitimate foundation for external purposes; first, *makrūh* with wine base medication and *mubah* if using other *najāsāt* (Ḥaṭṭāb, n.d.).

4.7.1.3 The Preferred (*Tarjīḥ*) Opinion:

On the basis of the above-mentioned Al-Quran and hadith legal evidence relating to *al-najāsāt* medicine, the researcher tends to hold the first opinion, which is permissible for the use of unlawful substances of medicinal products in the situation of *ḍarūrah*, including porcine derivatives in connection with this analysis.

In general, the authority to make use of *al-muḥarramāt* or *al-najāsāt* in the condition of *ḍarūrah* such as treating illness with camel urine disease (*al-ḥarām li dhātihi*), treating itchiness skin with silk clothes for men, replacing with gold nose to eliminate odour out of silver artificial nose for men and seeing women *awrah* in emergency time (*ḥarām li ghayrih*) are under *rukhṣah* justification.

In comparison, they defend the heterogeneous usefulness of the medication from individuals to individuals and this condition will still ensure the effectiveness of recovery procurement. Nonetheless, responding to the justification, the researcher observes that the likelihood to achieve *al-yaqīn* which equivalent to 100% of certainty level regardless to border either with unlawful or even lawful substances of medicines, thus the capability to treat the disease might produce various result from people to

people. Not to mention the human made medicine which may associated with side effects and interactions as it may have different reponse individually. The researcher views that the most appropriate level to be measured the probability of healing in allowing unlawful substance of medicine is conjecture (*ghalabah al-ẓan*) proportionate to 51% to 99%, instead of certainty equivalent to 100%.

Nevertheless, referring to the justification, the researcher states that the likelihood of achieving *al-yaqīn* equal to 100 percent of the degree of certainty regardless of whether it borders with illicit or even legal substances of medicines is impossible to be achieved owing to the capacity to treat the disease could yield different outcomes from individuals to individuals. Not to mention the human-made medication that is synonymous with flaws which is most of the time hardly to predict the individual's exact outcome. The researcher claims that conjecture (*ghalabah al-ẓan*) proportionate to 51% to 99%, rather than certainty equal to 100%, is the most suitable amount to be calculated as expectation in authorizing unlawful content of medication to reach restored state.

In this regard, Barbar and his folk' study (2010) reported that without treatment with anticoagulant for risk of thromboprophylaxis, VTE developed in four of the 186 patients as compare to 31 from the 283 patients who did not receive thromboprophylaxis. From this established research, the researcher able to conclude that even though the effectiveness of medicine proven by evidences, it is not ensured that patients will receive the similar result. Yet it is known that its healing property did improve the patient condition better that the non-treated group. Eventually, medical experts nowadays depend on approved medicine with using conjecture measurement to opt for effective medicines.

In addition to that, Muslim are prohibited to allow themselves to be plunged into destruction before struggling to find out the most appropriate medicine in saving their lives as encouraged in Surah al-Baqarah 2: 195;

﴿...وَلَا تُلۡقُواْ بِأَيۡدِيكُمۡ إِلَى ٱلتَّهۡلُكَةِ وَأَحۡسِنُوٓاْۛ إِنَّ ٱللَّهَ يُحِبُّ ٱلۡمُحۡسِنِينَ ١٩٥﴾

Meaning: "… and do not throw [yourselves] with your [own] hands into destruction [by refraining]. And do good; indeed, Allah loves the doers of good."

(Al-Quran. Surah Al-Baqarah 2: 195)

From that holy verse, it can be translated that all Muslims are forbidden from endangering themselves as suicide is contrary to the *maqāṣid al-sharīʿah* which always placing human well-being in life as the highest goal. The researcher then decided to opt only for the legal rule of permissibility to treat with an illegitimate origin of medication in the condition of *ḍarūrah*. In addition, as indicated by the Muslim medical doctor (Al-Nawawiyy, n.d.) the medicine itself proved to be the alternative to the legitimate one and could be consumed under its limits as endorsed by Al-Ghazāliyy (1997).

4.8 Porcine from Islamic *Fiqh* Dimension

A detailed and clear guideline for the acquisition of halal and wholesomeness (*ṭayyib*) items such as foods or non-foods have been disclosed by Islam. Indeed, the religion promotes the quest and consumption of halal food by Muslims to achieve improvement and well-being in life and hereafter. Laws and regulations on the usage of illicit sources such as wine are clearly prohibited, and mentioned in the Quranic verse;

۞يَسۡـَٔلُونَكَ عَنِ ٱلۡخَمۡرِ وَٱلۡمَيۡسِرِۖ قُلۡ فِيهِمَآ إِثۡمٞ كَبِيرٞ وَمَنَٰفِعُ لِلنَّاسِ وَإِثۡمُهُمَآ أَكۡبَرُ مِن نَّفۡعِهِمَاۗ وَيَسۡـَٔلُونَكَ مَاذَا يُنفِقُونَۖ قُلِ ٱلۡعَفۡوَۗ كَذَٰلِكَ يُبَيِّنُ ٱللَّهُ لَكُمُ ٱلۡأٓيَٰتِ لَعَلَّكُمۡ تَتَفَكَّرُونَ ٢١٩

Meaning: "They ask you about intoxicants and games of chance. Say: In both of them there is a great sin and means of profit for men, and their sin is greater than their profit. And they ask you as to what they should spend. Say: What you can spare. Thus, does Allah make clear to you the communications, that you may ponder,"

(Al-Quran. Al-Baqarah 2: 219)

This verse is an answer to Allāh's Messenger (PBUH) who asked Allāh, The Lawgiver, about the clarity of the wine, according to Ibn Kathīr (1999). Sins or *ithm* arising from an act of drinking wine and gambling (*maysīr*) was deemed by the virtue of religion as wrong doings. While the benefits (*nafʿ*) acquired for mundane affairs from *al-khamr* and *al-maysīr* productions may increase individual personal wealth, may contribute a smooth human body digestion system or give fantastic food taste (Ibn Kathir, 1999). Nevertheless, bad causalities also may arise from *al-khamr* and *al-maysīr* usage, for example addiction, cloudy minds and poor judgement leading to sinful actsuch as killing each other among young people and adults (Cronce & Corbin, 2010). This inference ultimately leads to the prohibition of Muslims from drinking wine and gambling (Ibn Jarīr al-Ṭabariyy, 2013) in order to avoid from the worst circumstances out of drinking the intoxicated beverages.

However, in current modern medical field, the superior capacity of porcine based LMWH to prevent incidents of VTE during pregnancy and puerperium are very much recommended. In addition, with the recent increment of maternal mortality statistics in Malaysia (DOSM, 2017), an effective preventive medicine is therefore required to save two lives; the mother and fetus to aim for a safe pregnancy.

While scientific evidence has proven the effectiveness of LMWH in pregnancy and puerperium, it causes significant controversy among Malaysian malay population as it is porcine in origin.

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4.8.1 Islamic Ruling (*Aḥkām*) Regarding Porcine

The word of *laḥm al-khinzīr* is enunciated clearly four times in Al-Quran. That quranic verses explain the rulings (*āyāt al-aḥkām*) of prohibition of eating porcine meat (*laḥm al-khinzīr*) unless in *ḍarūrah* situation as following:

﴿إِنَّمَا حَرَّمَ عَلَيْكُمُ ٱلْمَيْتَةَ وَٱلدَّمَ وَلَحْمَ ٱلْخِنزِيرِ وَمَآ أُهِلَّ بِهِۦ لِغَيْرِ ٱللَّهِ ۖ فَمَنِ ٱضْطُرَّ غَيْرَ بَاغٍ وَلَا عَادٍ فَلَآ إِثْمَ عَلَيْهِ ۚ إِنَّ ٱللَّهَ غَفُورٌ رَّحِيمٌ ١٧٣﴾

Meaning: "He has only forbidden to you dead animals, blood, the flesh of swine, and that which has been dedicated to other than Allah. But whoever is forced [by necessity], neither desiring [it] nor transgressing [its limit], there is no sin upon him. Indeed, Allah is Forgiving and Merciful."

(Al-Quran. Al-Baqarah 2: 173)

﴿حُرِّمَتْ عَلَيْكُمُ ٱلْمَيْتَةُ وَٱلدَّمُ وَلَحْمُ ٱلْخِنزِيرِ...٣﴾

Meaning: "Prohibited to you are dead animals, blood, the flesh of swine…"

(Al-Quran. Al-Mā´idah 5: 3)

﴿قُل لَّآ أَجِدُ فِي مَآ أُوحِيَ إِلَيَّ مُحَرَّمًا عَلَىٰ طَاعِمٍ يَطْعَمُهُۥٓ إِلَّآ أَن يَكُونَ مَيْتَةً أَوْ دَمًا مَّسْفُوحًا أَوْ لَحْمَ خِنزِيرٍ فَإِنَّهُۥ رِجْسٌ أَوْ فِسْقًا أُهِلَّ لِغَيْرِ ٱللَّهِ بِهِۦ ۚ فَمَنِ ٱضْطُرَّ غَيْرَ بَاغٍ وَلَا عَادٍ فَإِنَّ رَبَّكَ غَفُورٌ رَّحِيمٌ ١٤٥﴾

Meaning: "Say, 'I do not find within that which was revealed to me [anything] forbidden to one who would eat it unless it be a dead animal or blood spilled out or the flesh of swine - for indeed, it is impure - or it be [that slaughtered in] disobedience, dedicated to other than Allah. But whoever is forced [by necessity], neither desiring [it] nor transgressing [its limit], then indeed, your Lord is Forgiving and Merciful.'"

(Al-Quran. Al-Anʿām 6: 145)

﴿إِنَّمَا حَرَّمَ عَلَيْكُمُ ٱلْمَيْتَةَ وَٱلدَّمَ وَلَحْمَ ٱلْخِنزِيرِ وَمَآ أُهِلَّ لِغَيْرِ ٱللَّهِ بِهِۦ ۖ فَمَنِ ٱضْطُرَّ غَيْرَ بَاغٍ وَلَا عَادٍ فَإِنَّ ٱللَّهَ غَفُورٌ رَّحِيمٌ ١١٥﴾

Meaning: "He has only forbidden to you dead animals, blood, the flesh of swine, and that which has been dedicated to other than Allah. But whoever is forced [by necessity], neither desiring [it] nor transgressing [its limit] - then indeed, Allah is Forgiving and Merciful."

(Al-Quran. Al-Naḥl 16: 115)

4.8.1.1 Interpretation of *Āyāt Al-Aḥkām*

Al-Zamakhshariyy (2009) considered that the flesh of the porcine encompasses the lard (*shaḥm*) in interpreting the term of *laḥm* since lard is contained inside the flesh.

Meanwhile Ibn ʿĀshūr, defined *al-khinzīr* with *laḥm* in the prohibition of eating or consuming the pig because of its physical judgment of filth (Ibn ʿĀshūr, 1984).

The reason of surah Al-Anʿām verse 145 descended (*sabab bal-nuzūl*) is to disclose the culmination of divine message through rectifying wrong doings done by previous ignorant Arab people who forbid something that Allāh does not forbid, and at the same time allowing something else which Allāh forbid (Al-Zuhayliyy, 2009).

The term *laḥm al-khinzīr*, which connotes porcine meat, is clearly mentioned in those verses. In the verse, the term *laḥm* is expressed as the key part of the porcine body that provides tremendous benefits compared to other areas of the body components (Al-Khāzin, 2004). Ibn ʿAṭiyyah (2001) states that the *laḥm al-khinzīr* connotation generalizes sections such as lard and cartilage to the whole of the body. Al-Imām Mālik and his disciples claim that the word *laḥm* includes other parts of the body, for example, a person takes an oath not to eat *laḥm*, but he eats lard portion occasionally, thus this is unacceptable and his act is considered sinful. However, if the oath taker declares not to eat fat or *laḥm*, then he or she does not count as the committer of the sin (Al-Qurṭubiyy, 2006).

Nevertheless, the aforementioned four holy verses express a common condition, it is the situation of *ḍarūrah* in authorizing the consumption of *laḥm al-khinzīr*. In the circumstance of *ḍarūrah*, the forbidden items such as porcine can be eaten but under restriction for life survival in order to achieve the goal of shariah.

The researcher observed that in translating *laḥm al-khinzīr*, the interpreters (*mufassirīn*) agree with common consensus that it means the entire components from the porcine body including the skin, hair, feathers, bone and lard. Apparently, however, they differs in views pertaining to the legal law of gaining benefits from porcine wool or fur (*shiʿr al-khinzīr*) (Al-Jaṣṣāṣ, 1992) which to be addressed in further subdivision.

4.8.1.2 All about Porcine

There is a clear link between the prohibition of pigs or swine for serious theological and moral purposes. Pigs are graded in Islam as extreme filth (*al-najasah al-mughallazah*) apart from dogs. For Muslims, the prohibition on eating porcine or pork isthe main concern and basis. In other faiths, such as Islam, Judaism, Hinduism and Buddhism, or minor religions, such as Sikhs, Jains, Rastafarians, some Baha'is and some neo-pagans, have their own specific laws on the forbidden dietary consumption of animal meat and flesh (Richie, 2016).

In addition to the argument for kosher base as a stem for food consumption, religious reasoning is the ultimate reason for obeying the law. Islam is a faith fully obsessed with modesty and obedience before God, Allāh the Al-Mighty, Al-Quran (words of Allāh) and His Holy Prophet PBUH. Compliance with the laws of abstaining from consuming such things such as carcass, blood and pork meats meant being a good and real adherent of Islam while neglecting the prohibition of eating pork replacement food is considered as sin committers in Islam. Via this understanding, Muslims started to build their own halal market free of illicit goods either originating from pigs or other intoxicating bases.

In this research, the central debate is about the anticoagulant from porcine base medication used to prevent blood coagulation in pregnant women and after birth or puerperium. As seen in Figure 2.7 below, LMWH specifically Enoxaparin Sodium manufactured and marketed in its syringe form. This form is very effective in term of its usage because the drug readily measured either for prophylaxis or therapeutic treatment.

Figure 2.8: Enoxaparin Sodium or trade name is Clexane. One of the brands that is imported into Malaysia. Source: (Droguerias, n.d.).

Prior addressing the aligned *fiqh* solution on the use of LMWH in the treatment of VTE in pregnant and puerperium patients, it is necessary for jurists to know in detail the legal rule of the ingredient's itself. In this scenario, the researcher will list all of the porcine concerns and the reasoning for opting the porcine derivatives of pharmaceutical substances to directly treat obstetrical VTE event.

i. Definition of Porcine

Porcine is known popularly as pig, a mammal type of animal with stocky body with flat snout, can move independently of their heads, small eyes and large ears and comes from suidae family (Bradford, 2018). According to Online Collins Dictionary(n.d.), "Pig is a pink or black animal with short legs and not much hair on its skin. Pigs are often kept on farms for their meat, which is called pork, ham, bacon or gammon". In Arabic, it is called *al-khinzīr*.

Pig, swine, hog, porcine, pork, suid, ham are same animal but have some distinctions among of them in terms of physical appearance and origin countries which accentuated by its nomenclature. For example, swine denoted to domesticated suid while boar is referred to wild boar, European wild boar or generally meant to Paleartic-Asiatic species. The term of pig also differ geographically like Australian, Indo-

Malaysian, Asia, African and Pacific area more prone to mean feral, wild and domestic suid as pig undoubtedly (Diong, 1982).

In general, pigs are quickly divided into two types; domestic pig (Sus Scrofadomesticus) and wild boar (Sus Scrofa Ferus) even though records of zooarchaeology suggested that pigs are feral population, suggesting that the category may be wild and domesticus intermediate. This species can be considered either a domestic or a wild type as the most difficult species to decide. In the pig background, there is also another new taxon named Sus scrofa Palustris that believed wild shape, probably of Asian origin, that lived in Europe (Rowley-Conwy et al., 2012). However, there was a finding that domestic pig also originated from wild boar (Giuffra et al., 2000).

Pig is very reproductive creature as they can provide numerous products (Dietze, 2011) and profitable due to a wide range of human consumptions. The production of pig meat is cheaper than beef, mutton and other protein-based meat because, while some do not, pigs can consume rotting goods and trash. In terms of food, ham, pork and bacon are meat product produced from pig's flesh. The pork used to make sausages, hot dogs and puddings is part of the intestines. In a another hand, high demand for the skin from shoe, furniture manufacturers and car industry sectors especially for wild pigs(Brondz, 2018).

Related to this research, the porcine the intestinal mucosa is the main key for clinical material relevant to this analysis and to date believed to be the most powerful material that is processed to producethe anticoagulant used during pregnancy and puerperium.(Vilanova et al., 2019, Chandarajoti et al., 2016, Sanofi-Aventis, 2002) .

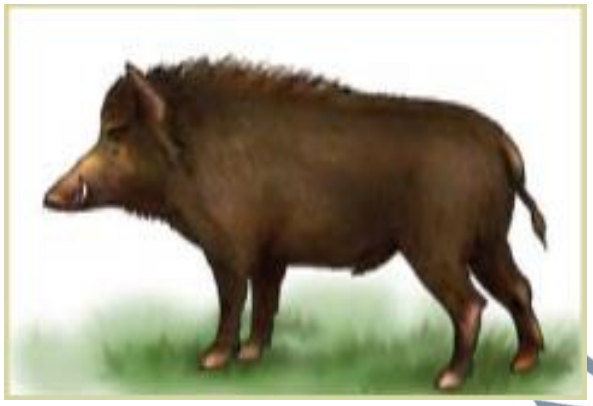

Figure 2.9: Wild boar found throughout the countries. It used for commercial. Source: (FAO Nepal & European Commision, 2010)

Figure 3.0: Landrace. Mostly for bacon production. (FAO Nepal & European Commision, 2010)

ii. Comparison the Anatomy and Physiology between Pig and Human

This subdivision is committed to discover the scientific explanation why pigs are chosen to be used by the manufacturing industry in the treatment of human diseases rather than by other halal species. Comparing between wild boars and domestic pigs, pigs have more than twenty separate parasitic worm types that can be spread to humans(Brondz, 2018), yet, However the pig's body anatomy is much more consistent with humans than most species as it is operated to match human consumption in order to save lives. As a matter of fact, several parts of the world are producing drugs from pig body components to date (Rosman et al., 2020).

In addition to phylogenetics and proteins, pigs are almost identicaland consistent with the human body structurethan mice (Walters et al., 2017). Pig possess almost identical to human DNA concurrently made it holds few merits for been used in medical treatment. Example given, anatomy of pig' heart is nearly identical to human heart (Crick et al, 1998) together with coagulation system, pig' system is compatible to human rather than baboon or other animal (Ibrahim et al., 2006).

In xenotransplantation, for example, previous literature defined that pigs are most likely to fit for human consumption, even though no refusal to excuse certain parts of xenograft might not be compatible from pig to man (Soin et al., 2001). Moreover, Magre et al (2003)listed that pigs are considered suitable for the eating of the human body, such as the capacity to achieve sexuality months only about nine to ten months, may have six to sixteen piglets for a birth, pregnancy time only for 3 months and 15 days, not categorized as extinct creatures as well as other primate species, digestive system ability to process their foods to be meat quicker than other animals and easier to exploit the biology so that its organs favor the recipients.

Table 1.8: The comparison of composite between primate animal, pig and human. Source: Naemah et al (2016). (Reprinted with permission)

Composite	Primate animal (monkey, baboon)	Pig	Human
Protein (g/l)	58-84	35-60	60-80
Cholesterol	1.22-3.84	3.02-3.08	3.62-6.72
Hemoglobin (g/l)	104.7-147.8	100-160	120-180
Leukosis (109/l)	2.5-18.7	7-20	4.5-11
Sugar (mmol/l)	2.2-9.3	3.6-5.27	3.9-6.1
Red blood cell (1012/l)	4.21-5.99	5-8	4.5-5.3
Diameter of Red blood cell (µm)	7.4	6.1	7.2
Oxygen in 100ml Red blood cell (100/ml)	15	22	20
Calcium (mmol/l)	138-153	135-145	135

Chloride (mmol/l)	99-115	100-105	100-108
Sodium (mmol/l)	2.04-2.68	2.75-2.85	2.1-2.6

The composite of each animal tells us according to Table 1.8, that there are empirical parallels between pigs and humans. Tiny differences between pigs and humans clarified the biochemical and anatomical aspects of pig compatibility in terms of protein, cholesterol, hemoglobin, leukosis, sugar, red blood cell count, red blood cell thickness, red blood cell oxygen, calcium, sodium and chloride.

Moreover, every component is nearly identical with respect to the structure of those species in the body system, but the distinctions between humans and pigs are slighter than those of other primates. Thus, scientists are increasingly trying to invent the most powerful and healthy medication from suitable organs or entities from the closest composite of species that would fit for human use in order to sustain the humans lives.

As the result, several pharmaceutical breakthroughs have been discovered today out of modern technologies that used porcine for human benefits, such as the heart valve (Zuhdi et al., 1974), pancreatic islet (Holdcraft et al., 2016), kidney (Kemter & Wolf, 2015). Porcine base anticoagulant, LMWH precisely enoxaparin sodium, is one of them from porcine mast cells that has been a case study for this analysis (Yang et al, 2018, Novotný et al, 2018, Łukaszuk et al, 2018).

4.8.1.3 Prohibition and Filthy Porcine (*Najāsah al-Khinzīr*) Accordance Four Islamic *Fiqh* Scholars Sects.

There are orders in Al-Quran that Allah appointed Muslims to do so and some of them are forbidden to do it. One of them is the prohibition of consuming pig meat,

so the clear response to the porcine prohibition inquiry is attributed to the command of Allah. These theological purposes are the primary reason for pigs' prohibition. In the same time, abundant viruses found in pig's body which are known to affect humans, as well as its unclean lifestyle and ecosystem, further provide clear justifications for prohibition which can be logically categorized as secondary justification.

The researcher segregates the discourse about *al-khinzīr* and its legal rule of filth according to *fiqh* view as following:

i) Flesh of Porcine (*laḥm al-khinzīr*) and Porcine Body Components.

In Al-Quran, the term *laḥm al-khinzīr* is explicitly enunciated four times and can be translated as the whole of the body, such as lard, hair or fur, bone and flesh, as mentioned earlier. Decisions by consensus is made by jurists of all sects (Ibn Mundhir, 1999, Ibn Hazam, 2003) that *laḥmal-khinzīr* represents the whole body of the porcine:

1) Shafi'ite sect (Al-Māwardiyy, 1994):

وَالْمُرَادُ بِلَحْمِ الْخِنْزِيرِ هُوَ: جُمْلَةُ الْخِنْزِيرِ، لِأَنَّ لَحْمَهُ قَدْ دَخَلَ فِي عُمُومِ الْمَيْتَةِ

Meaning: "What is meant by pig meat is: the bulk of pork; Because his flesh has entered into the commonness of the dead."

2) Hanabilite sect (Ibn Qudāmah, 1997):

إِطْلَاقُ اللَّحْمِ فِي الْحَيَوَانِ يُرَادُ بِهِ جُمْلَتُهُ لِأَنَّهُ أَكْثَرُ مَا فِيهِ وَلِذَلِكَ لَمَّا حَرَّمَ اللَّهُ تَعَالَى لَحْمَ الْخِنْزِيرِ، كَانَ تَحْرِيمًا لِجُمْلَتِهِ، كَذَا هَاهُنَا

Meaning: "Releasing meat to an animal that is intended as a whole; Because it is more than it contains, and that is why when God Almighty forbade pork meat, it was the same for its entirety."

3) Zahirite sect (Ibn Ḥazm, 2003)

لَايَحِلُّ أَكْلُ شَيْءٍ مِنْ الْخِنْزِيرِ، لَا لَحْمِهِ، وَ لَا شَحْمِهِ، وَلَاجِلْدِهِ، وَلَا عَصَبِهِ، وَلَاغُضْرُوفِهِ، وَلَاحَشْوَتِهِ، وَلَامُخِّهِ، وَلَاعَظْمِهِ، وَلَارَأْسِهِ، وَلَاأَطْرَافِهِ، وَلَالَبَنِهِ، وَلَاشَعْرِهِ- الذَّكَرُ وَالْأُنْثَوَ الصَّغِيرُ وَالْكَبِيرُ سَوَاءٌ

Meaning: "It is not permissible to eat something of pork, no meat or fat, nor its skin, nor its nerves, nor cartilages, nor his charge, no brain, no bones, no head, no limbs, nor its milk, nor his hair - male and female and the small and the big alike."

4) Hanafiyyah sect (Al-Kāsāniyy, 2003)

(قَوْلُهُ لِنَجَاسَةِ عَيْنِهِ) أَيْ عَيْنِ الْخِنْزِيرِ أَيْ بِجَمِيعِ أَجْزَائِهِ

Meaning: "His words are of the filfth of its physical body – *ʿain*) meaning the *ʿain* of the pig, that is, in all its parts."

5) Malikite's sect (Al-Dardīr, n.d.)

فَكُلُّ حَيٍّ - وَلَوْ كَلْبًا وَخِنْزِيرًا – طَاهِرٌ، وَكَذَا عَرَقُهُ وَمَا عُطِفَ عَلَيْهِ

Meaning: "So every living thing - even a dog and a pig - is pure, and like its sweat and anything that related to it."

Observing the elaboration of the jurists, the researcher can infer that the prohibition of consuming *laḥm al-khinzīr* includes other porcine physical body elements, rather than merely flesh. Most of the jurists justified that *laḥm* is the central feature of the portion of the body as well as the most advantageous part of the body of the pig, hence the rest of the body parts in its elaborations (*tābiʿ*). While lard or pig fat is also found in the flesh and included in the prohibited list.

While the Malikite sect seems far from other *fiqh* sects, the term of *laḥm al-khinzīr*, which encompasses the entire body of porcine, unites their arguments in deducting the Islamic prohibition of porcine. Nevertheless, the Malikite sect resolved to deduce that only died porcine *laḥm al-khinzīr* without slaughtering is forbidden which will be further elaborated (Al- ʿArīniyy, n.d.).

Jurists have elaborated, in addition to the topic of *laḥm al-khinzīr*, the decision of choosing between two or more unlawful materials for *al-muḍṭar* to rescue himself/herself in the *darūrah* region.

For example, in order to save life, a forced Muslim collides into two prohibitions (*muḥarramāni*), for instance, *mayyit* and *khamr*, then *khamr* is preferred to be consumed first, rather than *mayyit* because *darūrah* will not disappear out of drinking the wine but *mayyit* is able to wipe *darūrah* situation out (Al-Qaddūriyy, 2004). If a *al-muḍṭar* stumbles on *al-maytah* and died human flesh, then the *al-maytah* is allegedly selected, although it is *laḥm al-khinzīr* (Al-Nawawiyy, 1991).

The verses of the prohibition of eating porcine flesh represent eating the flesh as the final flow if there is another option of prohibitions such as dog or eating other porcine body parts such as lard, bone, skin or heart first to prove that it is necessary to prevent the prohibition of Allah, namely *laḥm al-khinzīr*, as practicable. This was mentioned in Hanabilite opinion sect (Al-Raḥībāniyy, n.d.). In the meantime, another party of the Malikite sect claimed that if the desperate individual before him or her faces porcine and carcass, the carcass is the first choice out of the extreme filth rather than porcine (Al-Kharshiyy, 1899).

ii) The Status of Porcine: Pure (*Najasah*) or Impure (*Ghairu al-Najasah*)?

Porcine, which is well recognised as a sensitive issue in Asia, particularly in Malaysia. With respect to its legal rule status, the porcine ruling clearly judged as impure as a physical whole, but is the prohibition of consuming *laḥm al-khinzīr* adequate to deduce that the entire body of porcine is impure? For instance, JAKIM in Malaysia, any items either foods or non-foods extracted from this creature as known as

taboo matter deserved much attention from the religious affairs authority. With regard to the justifications in terms of purity or impurity of the porcine body parts, this section will present our previous jurists from each *fiqh* sect.

Literatures of scholars' arguments in previous can be divided into two mainstreams pertaining the status of *najasah* of the porcine;

1) First Mainstream: Porcine is impure

The Islamic legal rule on pigs is obviously treated as unclean, either alive or dead. Therefore, for any purpose such as therapy, research, cuisine or decoration, the use of porcine is forbidden, whether the solely porcine body or any porcine derivatives.

Al-Sarakhshiyy (n.d.) reported that porcine, including its bone and nerve, is impure for the entire body because it relates to the *laḥm al-khinzīr*, while clerics in the Hanafite sect such as Abū Ḥanīfah, Muḥammad and Abū Yūsuf differ in their views in terms of utilizing the wool or pig hair (*al-intifāʿ bi shaʿr al-khinzīr*) as well as pig skin (*jild al-khinzīr*) for benefit.

The pronoun *al-ha* means 'it' in surah Al-Anʿām, verse 145, which comes from *fainnahu rijsun* and refers to the closest noun in that verse, which is *al-khinzīr* (Badr al-Dīn al-ʿAiniyy, 2000). The *al-ha* referred to 'possessor over it' or *muḍāf ilaihi* in another phrase, namely *al-khinzīr* and directly implied to the *rijsun* law that literally translated as filth, actually exists on the entire physical of porcineʿAbd al-Ghaffār Al-Shāfiʿiyy (n.d.).

Since Malikite sect maintains that there are no clear-cut disclosures neither as Quranic text nor hadith that advocate the prohibition of the entire body of porcine but only *laḥm al-khinzīr*. Malikite accordingly refuses to defend the other parts of the body is actually under the definition of *laḥm* either. The only word of *laḥm al-khinzīr* is

debatable to them because it does not explicitly state other parts such as bone, lard, tissue, skin, fur, feathers, wool and the kind.

Al-Shāfiʿiyy (2001) asserted that the state of extreme filth against pigs judged based on *qiyās* methodology with regard the prohibition of dog when few hadiths from the Prophet (PBUH) ordered the companions to wash the jar drunk by dog as follows:

إِذَا وَلَغَ الْكَلْبُ فِي الإِنَاءِ فَاغْسِلُوهُ سَبْعَ مَرَّاتٍ وَعَفِّرُوهُ الثَّامِنَةَ فِي التُّرَابِ

Meaning: "When the dog licks the utensil, wash it seven times and rub it with earth the eighth time,"
(Hadith. Muslim. Saḥīḥ Muslim. Kitāb al-Ṭahārah. Bāb Ruling on what was licked by a dog: #280)

Based on that hadith, quoted from Prophet (PBUH), the Shafi'ite cleric uses analogy (*qiyās*) to deduce the ruling that the whole body of a pig is considered as filth. In addition, Al-Shīrāziyy (1992) argued that pigs should be regarded as extreme filth (*min bāb al-awlā*), particularly the prohibition of eating pork meat, even though there is no prohibition verse in the Qur'anic text on the prohibition of eating dogs.

Another narrator in hadith sahih as follows:

إِذَا وَلَغَ الْكَلْبُ فِي إِنَاءِ أَحَدِكُمْ فَلْيُرِقْهُ ثُمَّ لْيَغْسِلْهُ سَبْعَ مِرَارٍ

Meaning: "When a dog licks a utensil belonging to any one of you, (the thing contained in it) should be thrown away and then (the utensil) should be washed seven times."
(Hadith. Muslim. Saḥīḥ Muslim. Kitāb al-Ṭahārah. Bāb Rulings on what was licked by a dog: #279)

The first hadith was pronounced with the word *faghsil'hu*, while the second hadith used the word *falyuriqhu*, all of which display the utensils' cleaning order. Those hadiths explain that the dog ruled as *najasah* and the dog's licked utensils must be washed seven times with water (Ibnu ʿAṭṭār, 2006).

Both hadiths are reasonable to disclose a legal rule judged as filth by the dog's saliva. If the saliva is directed in both hadiths by the Messenger of Allah to the Muslim

to cleanse it precisely, so other body parts such as hair, feathers, wool or skin deserve to obey the law of *najāsah* in that case.

Among the *fiqh* sect, the Shafi'ite sect delineates constant rationale for the issue of *najāsah al-khinzīr*, which inferred from several *qawāid fiqhiyyah* as follows:

Table 1.9: Shafi'ite jurists mentions in their books about the principle of purity and impurity of living creature. (Illustrated by the researcher)

Shafi'ite Jurists	*QawāidFiqhiyyah*	Book
Tāj Al-Dīn ʿAbd Al-Wahhāb bin ʿAliyy bin ʿAbd Al-Kāfiyy Al-Subkiyy (1991)	*(Al-Aṣlufī al-ḥayawānāt al-ṭahārah)* *-illā al-kalb wa al-khinzīr wa furūʿihima aw farʿin aḥadihima* (The principle in animals is purity) -except for dogs and pigs and their branches or the branches of of them	*Al-Ashbāh wa al-Naẓāir*
Badr al-DīnAl-Zarkashiyy (2000)	*(Al-hayawān kulluhu ṭāhir fi hāli ḥayātihi, illā al-kalb wa al-khinzīr wa al-mutawalad min humā* (The whole animal is pure during its lifetime, except for dogs and pigs and those born from them)	*Al-Manthūr fi al-Qawāʿid Fiqh Shāfiʿiyy*
Jalāluddīn ʿAbd al-Raḥmān Al-Suyūtiyy (1983)	*Al-Hayawān ṭāhir illā al-kalbwa al-khinzīr wa furuʿihimā* (The animal is pure, except for dogs, pigs and their branches)	*Al-Ashbah wa al-Naẓāir*

The table 1.9 compiles several *qawāid fiqhiyyah* which represents some Shafi'ites' standpoints in their books toward pig and dog's legal rules. Among of the similarities between those three *qawāid* is the specific verdict (*sīghah*), rather than the generic phrase, to express the connotation. In comparison, Shafi'ite clerics tend to use exceptional instruments for example, the use of the term *illā* to excuse the contentious animals which indeed, require further precaution upon their status. For example, Imām

al-Subkiyy clarified the *qāidah* by exempting dogs and pigs from the *qāidah*. Generally, the Shafi'i's stands against pigs and dogs was well understood and enforced by the public especially in Malaysia.

Imām Aḥmad bin Ḥanbal's opinion regarding pig's impurity law based on *qiyās* technique runs parallel with Shafi'ite judgement, in which the pig regarded as worse than dog (Al-Khalīl, 2006). That stance was consolidated by Syeikhul Islām Ibnu Taimiyyah too in that matter.

In short, while other porcine body components have been embedded in the meaning of *laḥm al-khinzīr* term, there are some prominent jurists argued that inadequate legal texts have also arisen to argue the porcine is impure. The following subdivision is the proof given by critics who believe that all living beings, including pigs and dogs, are pure.

2) Second View: The Porcine is Pure

A significant amount of *fiqh* literatures from Malikite school justifies the purity of porcine held based on popular *qāedah fiqhiyyah* among of them namely 'every life is pure' (*kullu ḥayyin ṭāhirun*). The *qāʿidah* defines and distinguishes Malikite sect stance from other *fiqh* sects with regard the most contentious animals such as pigs and dog.

Without exception, Malikite school extends its *qawāʿid fiqhiyyah* to the purity of all species, including to notorious animals such as pigs and dogs that have been applied by Malikite school of followers such as:

Table 2.0: Malikite jurists quote in their books about all living things are pure. (Illustrated by the researcher)

Malikite Jurists	*Qawāʿid fiqhiyyah*	Books
Abū Al-Walīd Al-Bājiyy (n.d.)	*Kullu ḥayyin ṭāhirun* (Every animal is pure)	*Al-Muntaqā Sharh Al-Muwaṭṭāʾ*
Ibnu Shās (1913)	*Al-ḥayawānat kulluhaʿalā al-ṭahārah* (All living beings based on purity)	*ʿAqd al-Jawāhir al-Thamaniyyah*
Abūʿ Abdillah Al-Maqqariyy (n.d.)	*Al-ḥayahʿillah al-ṭahārahʿinda Mālik, fa khinziru wa kalbu ʿindahu ṭāhirāni* (Live is the effective cause of purity in the sight of Malikite' opinion, then the pig and dog are purity)	*Al-Qawāʿid*
	Kullu ḥayawānin ṭāhir (Every animal is pure)	*Al-Kulliyyāt Al-Fiqhiyyah lil Imām Al-Maqqariyy*
Ibnu Al-ʿArabiyy(2003)	*Kullu ḥayawān ʿinda Mālik ṭāhir al-ʿain hattā al-khinzīr* (All living beings are purity physically in the sight of Malikite including the pig)	*Aḥkām al-Qurān*
Abū Zaid Al-Qayrawāniyy (1913)	*Kullu ḥayyin ṭāhir walau khinzīran aw shaiṭānan* (Every living beings purity including pig or demon)	*Al-Fawākih Al-Dawānī ʿalā Risālah ibn Abī Zaid Al-Qairawāniyy*
Al-Qāḍīʿ Abdul Wahhāb (n.d.)	*Al-ḥayawān kulluhu ṭāhir al-ʿain, ṭāhir al-suʿilla mā lā yatawaqqā al-najāsah ghāliban: kal kalb wal khinzīr wal mushrikīn* (All living beings are purity physically and purity in its conditions except the cautious filth majorly; such as dog and pig and non-Muslims)	*Al-Talqīnfī Al-Fiqh Al-Mālikiyy*

Table 2.0 includes a precise definition in several books of Malikite sects with regard the legal rule of living beings called animals (*ḥayawān*). The researcher can see the congruency of the *qawāʿid* justified by Malikite clerics with the exception of the

statement of Al-Qadi Abdul Wahhab which states that all living beings are pure with the exception of few creatures that often need more precautions about their ambivalent legal status such as dogs, pigs and non-Muslims.

The table shows regardless of the theory held by Al-Qāḍī ʿAbdul Wahhāb the popular opinion of Malikite school which declares all living beings are pure without exception to pigs and dog's which contrary to the *qawāʿid* held by Shafi'ite school. Malikite school of *qawāʿid* observed as precise, consice and more general as *qawāʿid* would not use the *adāt al-istithna´* for instance, *illa* to describe their stances.

3) Meaning of the *Qawāid*

The *qāʿidah* describes a life (*al-ḥayah*) as a justification for being ruled as purity. Life is a *ṭahārah* based on the effective cause (*ʿillah*) accordance to Malikite sect terminology (Al-ʿArīnīyy, n.d.). With reference to Al-Kafwiyy (1998), *al-ḥayah* refers to a terminology that describes the natural strength of action and sense. In the meanwhile, *al-ḥayah* has been seen by few means that the strength of growth resides in plants and animals, the capability for sense, practically defines the criteria of humanism in human beings and the impulses of animals in themselves. Therefore, as long as those criteria stick to those species, then the concept of life is accomplished.

The sect of Malikite typically classifies *al-ḥayah* into two parts; non-living things (*jamādāt*) and animals (*ḥayawānāt*) (Ibnu Shās, 1913), while *al-ḥayah* is divided into three parts by another division; *jamādāt*, plants (*nabātat*) and *ḥayawānāt*. According to the Malikite sect, Al-Qarāfiyy (1994) mentions in *Al-Dhakhīrah*, *al-ḥayah* is classified into three sections; *jamādāt*, *nabātāt*, *ḥayawānāt*.

4) ʿ*Illah* of *al-Ṭahārah* and ʿ*Illah* of *al-Najāsah*

Most of Malikite jurists justify life is the ʿ*illah* of *al-ṭahārah*. As long as al-*ḥayawānāt* and *al-nabātāt* alive, they deserve to be judged as pure including pig and dog. Malikite jurists elaborate that the opposite of life is death which ruled as *najis* because it is not associated to life anymore. This is the principle of *kullu ḥayyin ṭāhir* in concerning of the existence of life cycle. When the livings argued as pure, then the rest of the body is pure including pig and dog which holding the principal of purity based on its ʿ*illah* without any exception (Al-Maqqariyy, n.d., Al-Māziriyy, 1997, Ibnu Al-ʿArabiyy, 2003). Whether it is aquatic life or ground life, regardless of the means the animals are born or consume manure or controversial animals like pigs or dogs (ʿAlish, 1984), the legal law of purity on living beings involves.

Besides, slaughtering is a significant aspect to be observed upon animals because without slaughtering, that animal is argued as *najis li ʿainihi* as *maytah* or vice versa. Slaughtering practiced on animals, on the other hand simply substitutes the status of life and governs as purity as agreed in consensus including pig and dog (Al-Qarāfiyy, 1994, Al-Māziriyy, 1997).

Pertaining to the hadith instructed the adherents to wash the licked utensil up to seven times, Hanafite, Shafi'ite and Hanabilite sects argued that the dog is impure. Rationally, if the saliva of a dog is considered as impurity, then it concurrently corresponds to the whole of pig's body shall be considered more extreme than the dog's legal rule itself (Al-Māziriyy, 1997).

However, Malikite jurists responds towards seven times of washing utensil affected by the dog, indeed, not because of *najāsah* law, rather concerning of merely *taʿabud* element. The action of washing is not a requirement to declare its rule of *najāsah*, instead stemming from the water that had been contaminated by the dog or

because the dog has eaten other carcasses and the sorts. In fact, Malikite jurists argued that eating carcasses or prohibited things are not provision to rule the dog or pig as *najasah li ʻainihi*. The command of washing of the utensil most likelihood to avoid any ailments caused by the dog, instead of the dog is *najis* (Al-ʿArīniyy, n.d.).

They clarify Quranic text which support that animal saliva is purity despite the dog's saliva could transmit ailments and filth around the users with Surah Al-Ma´idah verse 4:

﴿يَسۡـَٔلُونَكَ مَاذَآ أُحِلَّ لَهُمۡۖ قُلۡ أُحِلَّ لَكُمُ ٱلطَّيِّبَٰتُ وَمَا عَلَّمۡتُم مِّنَ ٱلۡجَوَارِحِ مُكَلِّبِينَ تُعَلِّمُونَهُنَّ مِمَّا عَلَّمَكُمُ ٱللَّهُۖ فَكُلُواْ مِمَّآ أَمۡسَكۡنَ عَلَيۡكُمۡ وَٱذۡكُرُواْ ٱسۡمَ ٱللَّهِ عَلَيۡهِۖ وَٱتَّقُواْ ٱللَّهَۚ إِنَّ ٱللَّهَ سَرِيعُ ٱلۡحِسَابِ ٤﴾

Meaning: "They ask you, [O Muhammad], what has been made lawful for them. Say, "Lawful for you are [all] good foods and [game caught by] what you have trained of hunting animals which you train as Allah has taught you. So, eat of what they catch for you, and mention the name of Allah upon it, and fear Allah." Indeed, Allah is swift in account."

(Al-Quran. Surah Al-Maidah 3: 4)

Nevertheless, the common Malikite sect's perception on the purity of physical pigs is recognized by adherents of Malikite. However, without applying the common *qāʿidah fiqhiyyah* in Malikite *fiqh* such as Ibnu ʿAbd al-Barr (1978) in *al-Kāfīyy fī Fiqh Ahli al-Madīnah*, Al-Qāḍī ʿAbdul Wahhāb (n.d.) in *Al-Talqīn fi Fiqh al-Māliki* and Al-Lakhmiyy (n.d.) in *Al-Tabṣirah*, some of the Malikite sect opted for an unpopular stance by deducting both dog and pork are impure. Although these clerics held an unpopular position with regard to the legal law of the dog and pig, their books, however, were treated in Malikite *fiqh* as an accepted statement (*qaul al-muʿtamad*).

It is undoubted to deduce that jurists agree by consensus (*ijmā´*) that *laḥm* of porcine is explicitly stated in Surah Al-Anʿām verse 145 as impure and filth (Ibn Mundhir, 1999, Al-Qurṭubiyy, 2006). The researcher views, however, the *ijmā´* still has

space to be contested (*fīhi al-naẓar*) because there are clerics such as Imām Mālik contends that porcine is pure during its lifetime. This is supported by Al-Imām Al-Nawawiyy (n.d.) who enumerated that although Ibn Mundhir stated that the pig was considered as prohibitionby consensus, in contrary, Imām Mālik opposed that statement.

iii) Utilizing (*al-Intifāʿ*) of Porcine's Body

Islamic *fiqh* scholars make the same arguments based on the above-described problem regarding the *laḥm al-khinzīr* term, which interprets *laḥm* as comprising all other porcine components. However, as the inquiry of the Islamic ruling concerning utilizing (*al-intifāʾ*) the skin (*jild*) and the wool or hair/fur (*shiʿr*) of pig raised in the following hadiths, the debate reaches out at the stage of the conflict state.

1) Porcine's Skin

Skin (*jild* or *ihāb*) is a pig organ that sparks peculiar views among jurists as follows because of a hadith:

"قَالَ رَسُولُ اللهِ صلى الله عليه وسلم : أَيُّمَا إِهَابٍ دُبِغَ فَقَدْ طَهُرَ "

Meaning: "Any skin tanned, then it has been made pure,"

(Hadith. Al-Tirmidhiyy. Al-Jāmīʿ Al-Tirmidhiyy. Kitāb Al-Libās. Bāb Mā Jāʾa fī Julūd al-Maytah Idhā Dubigha: #1728)

According to Hanafite sect (Ibn Nujaym, n.d.), that hadith indicates that porcine skin is ruled as impure as a whole while Malikite sect such as (Al-Rajrajiyy, 2007)said that porcine skin is divided into two mainstreams after tanning; first, permissible to use or utilize it as the skin similarly described as carcass (*maytah*). Second, it is not acceptable to use or utilize it as the skin itself is similarly known as *laḥm al-khinzīr*. To

support that, Al-Qarāfiyy (1994) noted that despite the tanning method operated on pig and dog skins, they were, nevertheless, prohibited from permissibility on the grounds of the impurity clause. Slaughtering activity therefore does not, in effect, cause the purification of *maytah* and *laḥm al-khinzīr* to be permitted.

Shafi'ite jurists have consistently justified that any eating related to dogs and pigs is only acceptable during *ḍarūrah*. Ibnu Ḥajar al-Haitāmiyy al-Shāfi'iyy (n.d.) clarifies, for instance, that tanned animal skin may be used except for pork and dog skin. Al-Sharbīniyy (2004) noted that it is only acceptable to use porcine skin for bedding cloth (*iftirāsh*) instead of dressing cloth because the impurity law still extended to it and only *ḍarūrah* condition allowed it to be used.

On the basis of certain opinions of four prominent sects of Islam, the researcher is able to summarize that the majority of jurists agree that regular use of porcine skin is forbidden except for those jurists who authorize it to be eaten. However, slaughtering would never purify the pig and dog skin.

iii. Porcine hair/fur/wool

Wool or hair or fur (*shaʿr*) is a porcine organ that is often contentious among jurists. The hadith stated by Allah's Messenger (PBUH) concerning the ingestion of shaʿr is allowed in accordance with the understanding as follows.

وَقَدْ رُوِيَ أَنَّ رجلا سَأَلَ رَسُولَ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ عَنِ الْخِرَازَةِ بِشَعْرِ الْخِنْزِيرِ، فَقَالَ: (لَا بَأْسَ بِذَلِكَ) ذَكَرَهُ ابْنُ خُوَيْزِ مَنْدَادُ، قَالَ: وَلِأَنَّ الْخِرَازَةَ عَلَى عَهْدِ رَسُولِ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ كَانَتْ وَبَعْدَهُ مَوْجُودَةٌ ظَاهِرَةٌ، لَا نَعْلَمُ أَنَّ رَسُولَ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ أَنْكَرَهَا وَلَا أَحَدَ مِنَ الْأَئِمَّةِ بَعْدَهُ

Meaning: "It was narrated that a man asked the Messenger of Allah (PBUH) for sewing with hair pig, he said: (nothing wrong with that) was mentioned by Ibn Khuwayz Mandad, said: Because sewing at the time of the Messenger of Allah (PBUH) was, and after the present phenomenon, we do not know that the Messenger God, may God's prayers and peace be upon him, denied it, and none of the imams after it…" (Al-Qurṭubiyy, 2006)

It is beneficial to address that in the hadith, *shaʿr al-khinzīr* is classified as wool, fur or pork hair. Hanafite clerics strongly regulated porcine as *najasah* regardless of any means to procure the wool with sharp tools such as scissor, knife, machine or shaver, whether by pulling out or mowing or shearing. Therefore, *al-intifāʿ bi shaʿr al-khinzīr* is regarded as a prohibition even for sewing purposes unless the situation falls into *ḍarūrah*. In that case, itis allowed to use the porcine wool for any purposes. Nevertheless, the law of *ḍarūrah* never turns the porcine wool into *halal*, but it is only permissible for that *ḍarūrah* situation (Badr al-Dīn al-ʿAiniyy, 2000).

Meanwhile, Ibnu Kamāl Al-Ḥanafiyyah opined that the sewing action with using *shaʿr al-khinzīr* permitted in the virtue of *darūrah* only. Although, the selling of *shaʿr al-khinzīr* is deemed as lawful in Muḥammad's view. Meanwhile, Abū Yūsuf is on the side of Ibnu Kamāl who argued that the whole body of porcine is impure and *salaf* scholars never wore clothes out of *shaʿr al-khinzīr* (Ibn ʿĀbidīn, 2003). Explicitly, *al-intifāʿ bi al-shiʿr al-khinzīr* is prioritized in *darūrah* context (Badr al-Dīn al-ʿAiniyy, 2007).

Malikite sect argues that *sha'r al-khinzīr* is permitted to be used in concerning its status of purity based on Quranic text says:

﴿ وَمِنْ أَصْوَافِهَا وَأَوْبَارِهَا وَأَشْعَارِهَآ أَثَٰثًا وَمَتَٰعًا إِلَىٰ حِينٍ ٨٠﴾

Meaning: "and from their wool, fur and hair is furnishing and enjoyment for a time."
(Al-Quran. Surah al-Nahl 16: 80)

In explaining that quranic text, Allah's Messenger (PBUH) said upon the issue of utilizing *sha'r al-khinzīr* is "Does not matter," (Al-Wahhāb, n.d.). In the common opinion, Ibn Rushd al-Qurṭubiyy (1984) elaborates that *sha'r al-khinzīr* is denied as

impure in Malikite school of thought because the famous stance amongst them is all living things is pure including pig and dog, therefore using *sha'r al-khinzīr* which comprising wool, fur and hair either during alive or death deemed as pure and it is permissible for prayer or selling purposes. This is because Allāh's prohibition is specified on *laḥm al-khinzīr* only not even mentioned other part of pig's body.

Shafi'ite sect has delineated a very explicit and most resilience stance regarding porcine's status of legal rule, for instance *sha'r al-khinzīr* is impermissible to consume it for any function, for instance, clothes, prayer purpose or leather shoes (*khuf*) owing to filth cannot be purified with filth.

Furthermore, with regard to the *khuf* sewn out of pig's wool or fur being cleaned with the tanning procedure by which it is washed with seven times of pure (*mutlaq*) water and one of them is soil, Shafi'ite scholars remain to contend that the tanning process most certainly physically cleanses the *khuf* (ẓāhiriyy) instead of spiritually purifying it (*bāṭini*) (Al-Nawawiyy, 1980).

There is however, still a statement that supported with the *qāedah fiqhiyyah, idhā ḍāqa ittasʿa* in the case of wearing *khuf* sewn out of *shaʿral-khinzīr* in performing only *nawāfil* prayers several times, instead of *farḍ* prayer (Al-Rāfi'iyy, 1997) in virtue of widespread misery (*al-ʿumūm al-balwā*) and if it is difficult to search for another *khuf* made out of pure materials, then the situation is exempted (*maʿfu*).

The legal rule of using *shaʿr al-khinzīr* divided into two variants of opinions according to Hanabilite scholars such as such as Ibn Qudāmah al-Maqdisiyy (1997); first the hadith of *al-intifā bishaʿral-khinzīr*judged as prohibited by certain narrators such as Ibn Sīrīn, Al-Ḥakam, Ḥammād, Ishāq and Al-Shāfiʿiyy in relation to the impurity dependent on porcine *ʿain*. Secondly, Ibn Qudāmah al-Maqdisiyy, Al-Ḥasan,

Al-Awzaʿiyy and Abū Ḥanīfah, who are approved (*rukhṣah*), tend to use this view on the basis of requirement.

In conclusion, the researcher is able to infer that there are two mainstream arguments about the use of *shaʿr al-khinzīr*; first, it is not acceptable to use it in any goods resulting from the pig's impurity status, even in the situation of *darūrah*. Second, as long as the *qāedah* of all living beings is pure do applicable to the pig, ingestion is also allowed for the use of it except *laḥm al-khinzīr*. Reverting to this study, the subject of *istiḥālah* and *istihlāk* will further address discussion with regard to other components of the pig body called tissue to generate medicine called LMWH from no residue porcine DNA.

4.9 Health Prevention in Islam

The current modernization and advancement in medical development it still endures Islamic concept on prevention is better than cure (A R Gatrad, 2011). Islam encourages every Muslim to take a good care of health and it reflects in many of the practices including self-hygiene, eating in moderation and fasting. All these are meant to achieve good health by prevention of ailments. Thus, the role of prophylaxis in Islam is imperative hence to prevent further complications in pregnancy following incidences of which can be fatal as medical cases with malignancy disease like VTE during pregnancy and puerperium must be blocked prior its occurrence based on *qāʿidah fiqhiyyah* namely *"darʾu al-mafāsid muqaddam min jalbi al-maṣlaḥah"* (Al-Mubārak, 2008).

4.9.1 Definition of Prevention (Al-*Wiqāyah*)

The medical practitioners prefer the term prophylaxis which means prevention in

discussing the management to avoid further complications or side effect following the disease or treatment for VTE. Prophylaxis origins from the English word ‘pro’ which means before and later added with the word ‘phulaxis’ from a Greek word which means the act of guarding. These two words later were combined and named under modern Latin as prophylaxis. Therefore, thromboprophylaxis in this literature denotes to “Any preventive measure or medication that reduces the likelihood of the formation of blood clots” (Farlex & Partners, 2009).

In another hand, prevention in Arabic in known as *al-wiqāyah*. Ibn Manẓūr in his book, *Lisān al-ʿArab* stated that *al-wiqāyah* means “Allāh prevent him with prevention” (Ibnu Manẓūr, 1883). It also said, “I am prevented from something from destruction”. Al-Quran mentioned the word *al-wiqāyah* from Al-Quran:

فَوَقَىٰهُمُ ٱللَّهُ شَرَّ ذَٰلِكَ ٱلْيَوْمِ وَلَقَّىٰهُمْ نَضْرَةً وَسُرُورًا

Meaning: “So Allāh will protect them from the evil of that Day and give them radiance and happiness”

(Al-Quran. Al-Insān 76:11)

Al-wiqāyah also interpreted as knowledge of prevention from diseases and to strengthen the well-being individually or in society (Al-Fanjāriyy, 1991). The word *al-ṭib* associated with *al-wiqāʾi* (*al-ṭib al-wiqāiyy*), it denotes to a more comprehensive meaning; where a knowledge in preservation either individually or in a bigger society to be in a good health, which can be achieve through two different ways. The first, prevention from the diseases to occur and to stop it once diagnosed. Secondly, preservation of individual health by improving the way of life’s in a person and prohibit from factors which can contribute to the diseases or illness to happen” (Bellali, 2011).

In conclusion, *al-wiqāyah* can be interpreted as prevention from disease’s development by eliminating all the risk factors either external or internally. Internal

factors are any related causes due to the patient own genetic makeup, dietary and lifestyle. Whilst, external factors are defined by all the possible factors which is non-dependent to the person for example the medications given, surgical techniques and skilled health care providers. In this research, the risk factors of developing VTE among pregnant and postpartum women are observed carefully including the prophylaxis treatment with porcine base LMWH as required according to the Malaysian CPG.

4.9.2 The Fundamental Understanding Regarding *Al-Wiqāyah* in Islam

Preservation of health and avoidance from illness are the fundamental issues in medical treatment. This is further supported as it was long mentioned in Al-Quran related to *wiqāyah* including Al-Taḥrīm: 6, Al-Ḥashr: 9, Al-Taghābun: 16, Ghāfir: 9, Al-Baqarah: 201, Al-Naḥl: 81, Al-Raʿd: 37, Al-Insān: 11, Ghāfir: 45, Al-Baqarah: 195, Al-Isrā´: 32, Al-Mu´minūn: 5-7.

The verse in surah Al-Baqarah 2:195 directly encourage and emphasize Muslims not to throw ourselves into the destruction. Similarly, in surah al-Isrā´ verse 32 elaborating about the prohibition on prostitution or any similar behaviour. The verse stressed on the word *la taqrabu*, which means do not ever get closer to any behaviour which lead further to prostitution. Then, Surah Al-Mu'minun verse 5-7 also advocate to keep yourselves safe from *fāhishah* or *ill* deeds. Those *nuṣūṣ* or known as the detail evidences from Al-Quran implicitly commands Muslims to prevent themselves from destructions including from ill manners which leads to self-destructing diseases.

From the verses mentioned, it is concluded that the term of *al-wiqāyah* navigates Muslims to protect and prevent themselves from any risk factors including ill behaviors which can lead to any ailments.

4.9.3 *Al-Wiqāyah* in Islamic Medical Practices in the Beginning of Islam

Islam advocates Muslim to seek the benefit of healthy life. The scopes of *al-wiqāyah* in Medical Islamic practices during the time of Prophet (PBUH) and his companions (May Allah be pleased with them) can be classified into two scopes:

4.9.3.1 Prohibition to Use Intoxicants Ingredient in Food, Beverage or Medicinal Substances

Food and beverages are among the most crucial matters discussed in great depth among the muslim scholars (*ulamāʾ*). It is directly addressed either in Al-Quran or Hadith. The importance of foods' sources in Muslim dietary are paramount in being a good muslim as it the basis for human development either physically, mentally and spiritually which later reflects in behavior or practices. *Haram* food which contained impure ingredient (*al-khabāith*) is totally prohibited as mentioned in Al-Quran:

وَيُحِلُّ لَهُمُ ٱلطَّيِّبَٰتِ وَيُحَرِّمُ عَلَيۡهِمُ ٱلۡخَبَٰٓئِثَ

Meaning: "and makes lawful for them the good things and prohibits for them the evil"
(Al-Quran. Al- Aʿrāf 7: 157)

According to ʿAliyy bin Abī Ṭalḥah from Ibnu ʿAbbās, *al-khabāith* interpreted as flesh of pork, interest and all types of forbidden food category while few Muslim scholars perceived as any substances that are consider impure by which can harm to body and religion (Ibn Kathīr, 1999). Al-Bayḍāwi (n.d.) in another hand concluded that the word *al-khabāith* as flesh of pork and blood in terms of food and interpreted as interest and bribery in the context of non-food related.

In the past, the source of *ḥalāl* and non *ḥalāl* substances in food beverages or medicinal product were easily identified. *Al-Wiqāyah* in food and beverage is transparent as compare to any substances used in medicine. Furthermore, Muslim

scholars do emphasize on taking a good care of dietary and food as it will steer away many ailments and need for medicine. It is clearly stated in the verses, that the scope of prevention in Islam in food, beverages and medicine are required to avoid from taking *al-khabāith* substances and consume the medicine or *al-ṭayyibāt*.

4.9.3.2 Preventive Measures using Separation Method (*Qāʿidah al-ʿAzl*)

Few narrated hadiths elaborate on separation method has been implemented during the time of Prophet (PBUH) and his companions (May Allāh be pleased with them) either in the houses or hospitals. One of the examples was the prevention steps in transmission of contagious diseases from the sick to the healthy person (Al-Qudūmiyy, 2012).

The Muslim whom was an owner of the sick camel was reminded not to give drink at the same place where other healthy camel feed or drink. It was meant to protect the disease from being transmitted around. Islam prohibits actions that might increase the rate of contagious diseases among the individual and society as a whole. This can be seen when the contagious disease carriers are advised to be separated from healthy and fit one, for instance Cholera and Influenza infection.

A good example Cholera infection which happens due to poor sanitation and hygiene, it causes severe diarrhea and vomiting. It is very contagious, able to transmit quickly and may lead to life threatening sequele and often fatalities (Davis, n.d.). Hence, the command is to flee away from diseased area in an outbreak if not infected, but to stay if already infected or in the area. So that it is not contagious to others and prevent spread of the disease. Islam advocates upon Muslims to prevent themselves from seeking any illness.

4.9.4 *Al-Wiqāyah* in Medical Islamic Practices in the Modern Era

Over the last few decades, the medicinal development rapidly changes human life including *al-wiqāyah* in medical practices. There is no conflict input between *al-wiqāyah* from diseases. Preventive medicine more accepted due to the advancing facilities and expertise. The availability of thromboprophylaxis treatment against VTE during pregnancy and puerperium creates issue as the treatment is best with porcine based LMWH Prophylaxis (Prevention) from VTE during pregnancy and puerperium.

4.10 *Sharīʿah* Principles regarding Thromboprophylaxis with LMWH during Pregnancy and Puerperium

A number of recent studies have shown that LMWH is considered both secure and effective in preventing or treating VTE during pregnancy and puerperium, irrespective of whether it is administered to non-Muslims or Muslims. This subject is therefore the answer to the second research objective of this study, which is said to thoroughly understand the concepts of shariah in terms of prevention and treatment of VTE during pregnancy and puerperium using LMWH.

The key concepts focused inthis chapter are the principle of *ḍarūrah*, the principle of *ḥājah*, the principles of *istiḥālah* and *istihlāk* from *fiqh* point of view, which include its meanings, the basic legal laws of *ḍarūrah*, *ḥājah* and *istiḥālah* in Islam. The essential elements in *ḍarūrah*, *ḥājah* and *istiḥālah* in deducting Islamic rules and finally *qawāʿid fiqhiyyah* which relevant to *ḍarūrah*, *ḥājah* and *istiḥālah* will also be discussed.

4.10.1 The Principle of *Istiḥālah* and *Istihlāk* for Thromboprophylaxis with VTE during Pregnancy and Puerperium

Over the past few years, the potentials of LMWH such as Enoxaparin sodium compared to other choices of anticoagulants for pregnant women and in postpartum period to inhibit the occurrence of thrombosis has been clinically proved across the globe (Chan, 2018, Wang et al., 2018). The usage of LMWH or Enoxaparin sodium during pregnancy and puerperium associated with successful pregnancy outcome and minimal side effect such as osteoporosis, bleeding on top of reducing the maternal mortality (De Sancho et al, 2012). Despite its capabilities in reducing maternal morbidity and mortality, LMWH is a porcine base anticoagulant that underwent transformation and depolymerization processes which had sparks controversial arguments regarding its original source as it is prohibited in Islam.

In addition to that, decision of MCMKI regarding it usage had been clearly delineated to public in 2009 (JAKIM, 2015). This statement was rather general anddid not have any exemption on pregnant and puerperium women which is putative to all kinds of thrombosis either heart attack, stroke or massive pulmonary embolism during pregnancy and puerperium. Notably, transformation (*istiḥālah*) and decomposition (*istihlāk*) processes are two Islamic legal rule determinants applicable in Shariah, especially in the food and beverage field. In previous jurists' discussions, all approaches were discussed, for example, in food and beverage as well as *ṭahārah* primarily (Saadan, 2009).

The sources of LMWH specifically enoxaparin sodium is derived from porcine mast cells or the intestine mucosa (Yang et al, 2018, Novotný et al, 2018, Łukaszuk et

al, 2018) as illustrated below. It is to give a general idea prior to further discussion of *istiḥālah* and *istihlāk* that claimed to occur in the manufacture of LMWH.

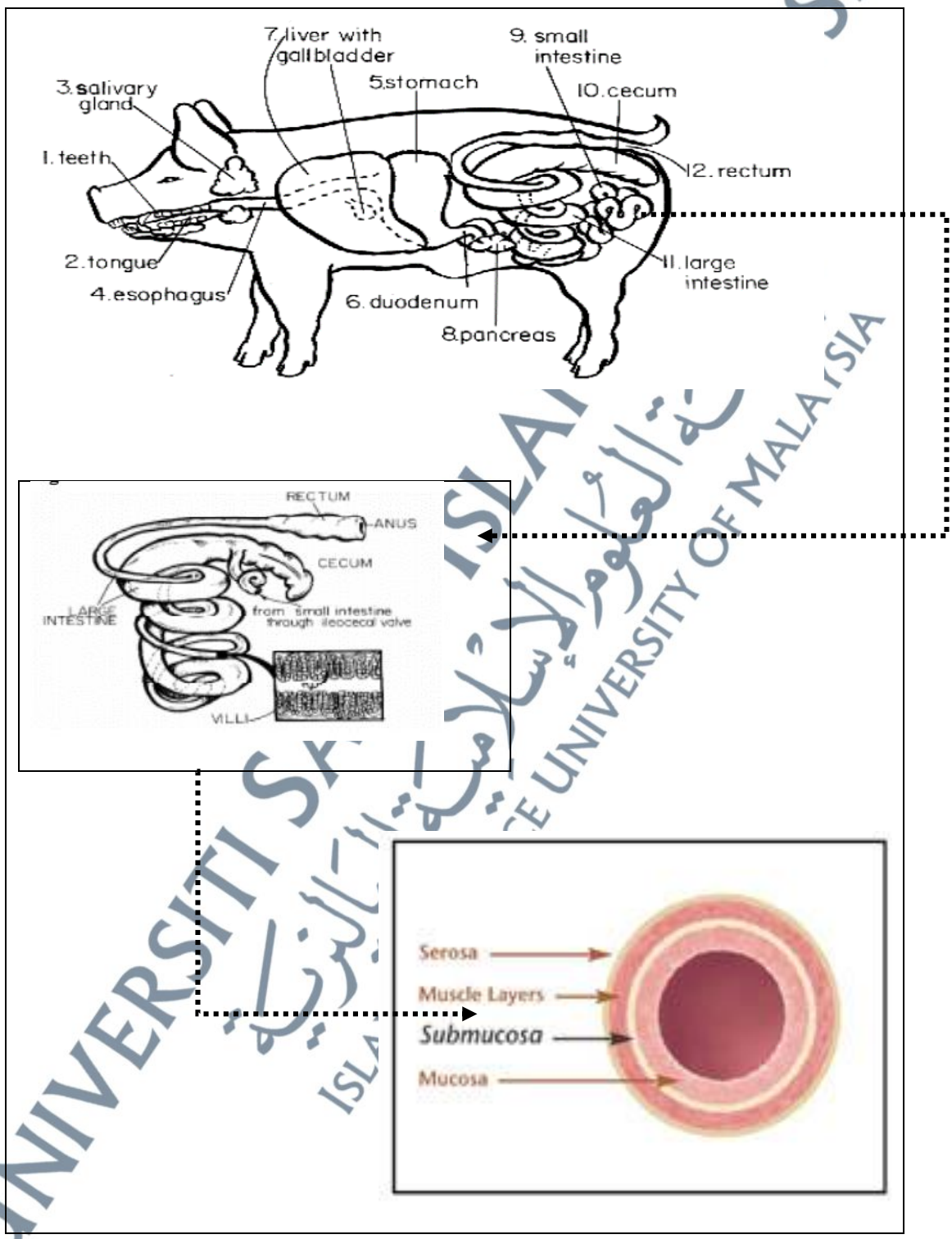

Figure 3.1: Enoxaparin Sodium is derived from the mucosal porcine intestine. The diagram indicates where the layer of mucosa in the large intestine is located. (Rowan et al, 1997). (Figure is researcher's analysis)

Based on Figure 3.1, it is stated that the layer of mucosa found in the porcine intestine is one of the components of the porcine body. As has been previously stated, owing to the reason of its impurity as accepted in *ijmāʿ*, porcine and its whole body components are prohibitted from being eaten, but the prohibition is excused during the state of *ḍarūrah*. In addition to *ḍarūrah* yardstick in deriving legal law, the methods of *istiḥālah* and *istihlāk* on filth substance that has transformed and depolymerized into another new forms were also recognized in shariah, but still, there are few disputes between jurists upon both methods.

The theories of *istiḥālah* and *istihlāk* will be justified by this study as a secondary statement only because Malaysian jurists are non-partisan in accepting *istiḥālah* and *istihlāk* in deriving legal law. However, both methods are still important be clearly clarified with respect to the second objective of this research, the shariah principals in handling the use of LMWH. Apart from that, this is the appropriate medium to reveal either the manufacture of LMWH fulfills the requirement of *istiḥālah* and *istihlāk* or not.

Istiḥālah as previously, had been discoursed by Muslim jurists in the chapter of *ṭahārah* instead of chapter of foods and medicines. In contrast, the arena of numerous cases which engaging *istiḥālah* occur in the subdivision of food and nonfood nowadays (Tuan Sidek & Rizwan, 2017). Regardless of which chapter the jurists disclosed the *istiḥālah* and *istihlāk*, the epistemology of *istiḥālah* did have the same connotation with transformation while *istihlāk* denoted to chemical decompositions (Hapiz, 2016),

4.10.1.1 Definition of *Istiḥālah* by Literal and Technically

Literally, *istiḥālah* denoted from the root word *ḥāwala* (حاول) which means change (Ibnu Manzur, 1883). *Istiḥāla* (استحال) comes from derivatives word – استحال

يستحيل استحال - in which similar meaning with حال means انقلب change as well as تغير defined as transformed to other thing (Al-Rāziyy, 1986). Al-Fayyūmiyy explained *istiḥālah* means transform to another thing in terms of nature and characteristic (1987).

Technically, *istiḥālah* is the term used to describe the changes that a certain substance had underwent and it is not reversible to its original condition. For instance eliminating of the impure (*najasah*) entity as well as changing the dirty thing into dust (Qalʿahjiyy, 1985). It is also known as turning the shape and enduring it in the new shape, for example, heated or frozen water (Al-Jurjāniyy, 2004). The *istiḥālah* placed itself in the process of transformation which eliminating the physical *najasah* to another characteristics simultaneously resulted into the new physical form with new name of it (ʿAliyy, 2013).

Meanwhile, the researcher is in favor to highlight the scientific terminology of *istiḥālah* given by Muḥammad al-Ḥawariyy (n.d.):

ينظر إلى تفاعل كيميائى يحول المادة إلى مركب أخر على أنه ضرب من الاستحالة العين إلى عين أخرى كتحويل الزيت والشحوم على اختلاف مصادرها إلى صابون.

Meaning: "It is observed to every single chemical reaction wherein it is turned out into new entity, an expression of changing from something to another thing for instance, olive oil or lard from various sources into soap."

That statement can be comprehended by a process of evolving from a substance to another new substance physically, chemically in terms of smell, color or taste. The changes of molecule to another molecular entity, reflects by another name for the new entity, visibility (*dhāt*) to another (*dhāt*) which immediately change the definition of later form.

4.10.1.2 Definition of *Istihlāk* Literally and Technically

Literally, *istihlāk* is defined as *halaka* with *wazanfuʿul* appear as *huluk* means fall down (Ibnu Fāris, 1979). The word هلك الشيء (*halaka al-shayʾ*) has relation with *istihlāk al-māl* means as money that had been spend (Muʿjam al-Muṣṭalaḥāt wa Alfāẓ al-Fiqhiyyah, n.d.). From scientific perspective, the term *istihlāk* often being implied to the word of chemical decomposition or depletion (Mohammad Aizat, 2009, Farhani, 2017), depolymerization (Anisah & Muhammad Safiri, n.d.), deterioration (Hammad, 2004), extreme dilution (Mariam Abdul Latif, 2013).

In *fiqh* terminology, *istihlāk* denoted a merge between physical (*ʿain*) into another physical (*ʿain*) that changed the original shape feature, nature and structure and is regarded as an object that undergoes physical changes specifically break down from each physical form. A drop of wine or milk, for instance, blends into water and merges together (Ḥammād, 2004). After the event of the merging process into clean and pure liquor or oil and the like, the dissolution of the features which dilute its existence, composition and name of the prohibited object such as a droplet of wine or pork or stool from its physical form, indeed, changed the name according to the latter form. The declaration of Ibnu Taymiyyah accepted this fact with regard changing the name of the object based on the latter form:

إن الله حرم الخبائث التى هى الدم والميتة ولحم الخنزير ونحو ذلك فإذا وقعت هذه الماء أو غيره واستهلكت لم يبق هناك دم ولا ميته ولا خنزيرأصلا كما أن الخمر إذا استهلكت فى المائع لم يكن الشارب لها شاربا للخمر

Meaning: "Indeed, Allāh forbade the impure (*al-khabāith*) things which comprising blood, carcass, meat of pig and the like, and if it drops into water or else and destroys in it, then there is no more blood or carcass or meat of pig as in the original form as similar as one who drinks water which is a droplet of wine drops into it, then the person will not be deemed drinking wine (Ibnu Taimiyyah, 2004)."

In conclusion, the researcher, therefore, infers that the distinguishing meaning between *istiḥālah* and *istihlak* terms are referred to their processes. *Istiḥālah* is a complete transformation which involves substantial changing. For example, after mucosa layer of porcine mixed with salt and water, those entities transformed into the new form called drug substance of medicine. The ruling for that medicine still debated worldwide while MCMKI remains holding the cautious stance of prohibition because the *istiḥālah* process in LMWH process is unnatural by which there is human intervention to purposely make the medicine. While *istihlāk*, can be illustrated, for instance, a carcass of pig died under an apple tree. Later, an apple from the growth tree is *ḥalāl* and fit for Muslim consumption even though there is human intervention (JAKIM, 2015). The decomposition process of pig body here is meant to clarify how *istihlāk* occurs in this context. However, this inconsistency stance is, indeed questionable till today (Farhani, 2017).

Istihlāk also recognized as depolymerization. It is a process of converting a polymer into a monomer or a mixture of monomers for example, the process of digestion clarified as depolymerization of macromolecules such as proteins (IUPAC, 2014). However, in the context of this thesis, the researcher prefers to choose depolymerization as *istihlāk* meaning, this is because decomposition viewed as a larger process of depolymerization.

Figure 3.2 :The study conducted on the stages of decomposition of a summer carrion of the baby pig (Sus Scrofa Linnaeus) (Payne, 1965)

Payne (1965) analysis illustrated in Figure 3.2 to describe the mechanism of decomposition of a baby porcine carcass by stages. The sequential picture taken to illustrate the progress of the carcass decomposition that ultimately leave to no flesh residue, which is called as *istihlāk* in *fiqh* discipline.

While *istihlāk* is the process of assimilation and intense dilution of prohibited objects or substance in Islam, and had undergone a process of decomposition or disintegration until the original properties in the latter form are non-traceable, such as animal urination in the water, then the river is lawful for drinking or bathing in it (Farhani et al, 2014).

4.10.1.3 Legal Proofs of *Istiḥālah* and *Istihlāk* in Islam

Albeit the 'transformation principle' in molecular biology initially been experimented by Frederick Griffth, a British army surgeon (Fink, 2005) in 1928 through his experiment on mice wherein related something that could cause bacteria to transform from one type to another (Qamar, 2018, W. H. Freeman, 2000, McCarty, 1985), apparently the discussion pertaining to transformation (*istiḥālah*) and depolymerization or decomposition (*istihlāk*) had been explored and debated amongst shariah jurists putatively without scientific experiment in the last millennial years ago as Allah says in the Al-Quran.

وَإِنَّ لَكُمْ فِي ٱلْأَنْعَٰمِ لَعِبْرَةً ۖ نُّسْقِيكُم مِّمَّا فِي بُطُونِهِۦ مِنۢ بَيْنِ فَرْثٍ وَدَمٍ لَّبَنًا خَالِصًا سَآئِغًا لِّلشَّٰرِبِينَ ٦٦

Meaning: "And indeed, for you in grazing livestock is a lesson. We give you drink from what is in their bellies - between excretion and blood - pure milk, palatable to drinkers."
(Al-Quran. Al-Naḥl 16: 66)

Surah Al-Naḥl, verse 66, describes the milk provided from cattle, originally converted from blood also obtained from the animal's food. The animal's digested food turns out to be meat, blood and milk, while the remainders are excreted. This circulation

explained that animal milk, between stool and blood, is called pure and safe (Saadan, 2014).

For example, through the usage of the *istiḥālah* definition, the Prophet's sunnah transforms liquor to vinegar, deer blood to musk and animal skin tanned except dog and pig after it is washed. The Prophet (PBUH) said, in each case:

عن عَايِشَةَ أَنّ النّبِيّ صَلّى اللّهُ عَلَيْهِ وَسَلّمَقَالَ نِعْمَ الْأُدُمُ أَوْ الْإِدَامُ الْخَلُّ

Meaning: "'Āishah reported: The Prophet, peace and blessings be upon him, said, "The best of condiments is vinegar."
(Hadith. Muslim. Saḥīḥ Muslim. Kitāb Al-Aṭ'imah. Bāb Faḍīlah al-Khal, wa Ta'ādum bihi : #2051)

عَنْ أَبِي سَعِيدٍ الْخُدْرِيّ أَنّ رَسُولَ اللهِ صَلّى اللّهُ عَلَيْهِ وَسَلّمَ قال أَطْيَبُ الطِّيبِ المسك

Meaning: "Abu Sa'id Al-Khudri reported: 'The Messenger of Allah (PBUH), 'musk is the best perfume'."
(Hadith. Al-Tirmidhī. Al-Jāmī' Al-Kabīr. Kitāb al-Janā´iz. Bāb Mā Jā´a fīal-misk li al-mayyit: Juz'2 #991)

أَنَّ رَسولَ اللهِ صلَّى اللهُ عليه سلَّم مرَّ بِشاةٍ ميّتةٍ فَقال: هلَّا استَمْتعْتُم بإِهابِها! قالوا: إنَّها ميّتةٌ قال: إنَّ ما حَرُم أَكلُها

Meaning: Once Allāh's Messenger passed by a dead sheep and said (to the people), 'Why don't you use its hide?' They said, 'but it is dead,' He said, 'Only eating it, is prohibited.'
(Hadīth. Al-Bukhāriyy. Saḥīḥ al-Bukhāriyy. Kitāb al-Zabā´iḥ wa al-Sa'īd. BābJulūd al-Maytah: #5531)

Such hadith texts show that *istiḥālah* has a solid base to be applied today in novel situations in which rapid change in growth happens internationally nowadays. Moreover, in the *ḥalāl* arena, Muslim consumerism is spreading consciously as the word such as Islamic consumerism (*al-fiqh al-istihlākiyy* or *istihlākiyyāt al-Islamiyyah*) has now arise and become acceptable to respond to the demand of the current millennium (Man, 2014, Mahaiyadin & Osman, 2017) .

According to Mohd Aizat Jamaludin & Jasimah (2009) the fundamental in the main sources argued for permissibility of *istiḥālah* are from Al-Quran, hadīth, *ijmāʿ* and *qiyās*. While secondary sources of *istiḥālah* includes as *maṣlaḥah* (public interest), *ʿurf* (custom), *al-istiḥsān* (juridical preference), *sad al-dharīʿah* (blocking the means), *al-istiṣḥab* (presumption of continuity) and others (Awdah, 2010).

In the meantime, the validity of the theory of *istihlāk* is derived from a few hadiths that stated more than two *qullah*s after filth drops into it regarding the status of law on the water.

عَنِ ابْنِ عُمَرَ قَالَ سَمِعْتُ رَسُولَ اللَّهِ صلى الله عليه وسلم وَهُوَ يُسْأَلُ عَنِ الْمَاءِ يَكُونُ فِي الْفَلاَةِ مِنَ الأَرْضِ وَمَا يَنُوبُهُ مِنَ السِّبَاعِ وَالدَّوَابِّ قَالَ فَقَالَ رَسُولُ اللَّهِ صلى الله عليه وسلم "إِذَا كَانَ الْمَاءُ قُلَّتَيْنِ لَمْ يَحْمِلِ الْخَبَثَ"

Ibnuʿ Umar (May Allāh be pleased with him) narrated: I heard Prophet Muhammad (PBUH) while he was being asked about water in an open area of the land, and predators and beast some to it. He said, 'When the water is two qullah it does not carry filfth.' (Hadith. Al-Tirmidhiyy. Al-Jāmīʿ Al-Kabīr. Kitāb al-Ṭahārah. Bāb Minhu Ākhar: #67)

This hadith indicates that impure water or unlawful person would not alter the status of pure and clean water with two *qullah*s to be ḥaram status without any changes in the essence and characteristics of clean water such as odor, taste or color, but rather survive to use it (Ibn Taymiyyah, 2004).

Another hadith that treated *istihlāk* as an alternative measure of *ḥalāl* and *ḥaram* determination is about Buḍā'ah Well where people threw their dirty clothes that were used as menstrual fabric, dog bones and all stinky stuff into it in the time of the Prophet (PBUH), but the Prophet (PBUH) said that the water stays clean and pure in that well. The hadith mentioned:

عَنْ أَبِى سَعِيدٍ الْخُدْرِيِّ أَنَّهُ قِيلَ لِرَسُولِ اللَّهِ صلى الله عليه وسلم أَنَتَوَضَّأُ مِنْ بِئْرِ بُضَاعَةَ وَهِىَ بِئْرٌ يُطْرَحُ فِيهَا الْحِيَضُ وَلَحْمُ الْكِلاَبِ وَالنَّتْنُ فَقَالَ رَسُولُ اللَّهِ صلى الله عليه وسلم "الْمَاءُ طَهُورٌ لاَ يُنَجِّسُهُ شَىْءٌ"

Narrated from Abu Saʿid al-Khudriyy: "The people asked the Messenger of Allāh: Can we perform ablution out of the well al-Buḍāʿah, which a well into which menstural clothes, dead dogs and stinking things were thrown?' He replied, 'water is pure and is not defiled by anything.'"

(Abū Daud. Sunan Abī Daud. Kitāb al-Ṭahārah. Bāb fī Biʿri Buḍāʿah: Juz' 1 #66)

4.10.1.4 Overview Upon *Istiḥālah* in the Light of *Fiqh* Scholar Sects

Jurists vary in determining the position of Islamic law on the question of the sources of unlawful substances undertaking the process of transforming to a new form from which the later form can be detected, smelt, tasted by human sense (Man, 2009, Hapiz, 2016, Man, 2014), not to mention when the vast technologies can now eliminate the core of the substance called Deoxyribonucleic acid (DNA).

In deducting the position of Islamic law on this issue, the safe and pure end products arising from the natural method or using modern technologies rendered the jurists differ in opinions.

Reverting to the case of LMWH as stated in the beginning, it is formed from porcine intestinal mucosa that has been transformed via conversion agent by enzyme, removing its DNA and appears as an anticoagulant for pregnant women as well as after delivery.

Before the status of Islamic law determines it, the big picture of *fiqh* sects' stances shall be clearly understood. Due to the above preceding discussion, jurists are conflicting into two large divisions with their own evidence and analysis particularly at the reason of the judgement process (*taʿlīl al-aḥkām*) regarding *istiḥālah* as follows. The researcher will begin with Hanafite sect followed by later sects:

i. Hanafite Sect

Istiḥālah is transformed into a condition according to the Hanafite sect that unlawful drugs have changed completely from their original existence and form. At the final point, persons are unable to see or smell or taste the original form by merely using physical inspection. In Islamic law, it is judged as clean and pure. The *ʿillah* of the prohibition has disappeared is the clearest and logical rationale for the phase of change. The related instance given is that porcine lard is manipulated by incineration or absorption or other methods to create washing body soap or perfume or spray for fruit or even medicine capsule for medical purposes. The Hanafite sect accepted that the latter (not the original form) is pure and not impiety to feed, drink, ingest, or not consume, either for religious reasons (Ibnu ʿAbidin, 2003).

This statement is supported by few literatures from Hanafite sect such as:

Al-Zaylaʿiyy (1897) in his book mentioned:

الأعيان النجسة تطهر بالاستحالة عندنا وذلك مثل الميتة إذا وقعت فى المملحة فاستحلت حتى ضارت ملحا والعذرة إذا صارت ترابا أو أحرقت بالنار وصارت رمادا فهى نظير الخمرإذا تخللت أو جلد الميتة إذا دبغت فإنه يحكم بطهارتها للاستحالة وذكر فى الفتاوى أن رأس الشاة لو أحرق حتى زال الدم يحكم بطهارته وكذا البلة النجسة فى التنور تزول بالاحراق.

Meaning: "An unclean thing will be purified by *istiḥālah*, as an example, the dead animal becoming a carcass on a salt pile until it is united with salt, and the animal stools that turn into soil or burn with fire to ashes. This condition is similar to the liquor that turns into vinegar or animal skins that are purified by the tanning process due to its change (*istiḥālah*). It also mentioned in *Al-Fatāwā* that the blood on the head of goat when it is burned, it becomes purify. As well as the filth soil, if we made pottery using that soil then burned it on fire, then it considered purified,"

While (Khisrū, n.d.) in his book:

فإن الأعيان تطهر بالاستحالة كالميتة إذا صارت ملحا، والعذرة إذا صارت ترابا، والخمر خلا ترابا

Meaning: "The objects are purified with *istiḥālah*, like a carcass in the salt field (then its dissolved into salts), such as stool (shit) become soil, liquor into vinegar."

Muḥammad, Hanafite jurists, explained that if porcine lard combined with salt-making mineral and final product resulted in pure and clean white salt, which in the end does not exhibit all the original properties, then it is religiously clean and suitable for human consumption (Ibn Nujaym, n.d.).

Regarding the impurity of the essence of the material that had been changed, refined and gradually converted into new form, Hanafite sect had placed few *fatwās* (rulings) that engulfed contentious law by which, despite initially made out of unclean and impure things, the law of final products subjected to the life of *ʿillah*. The initial form of the object is completely deteriorated and disabled to see all impurity elements by eye inspection, such as cooking pot made of unclean soil and soap from porcine lard. These products are actually permitted to be used for religious reasons (Kashim et al., 2015).

iv. Malikite Sect

Al-Imām Mālik argued in a clear but influential way with respect to the transition from food to blood and excrement. Food is originally rendered safe and healthy, but after the food has been consumed, digested, and regurgitated, the food legal rule is instantly subjected to impurity. In this sense, a related idea to the *istiḥālah* process has also been suggested by this process (Al-Dusuqiyy, n.d.).

This argument is based on two foundations. Firstly, based on *qiyās musāwah* principal, for instance, the alcohol or wine may become clean and pure in the form of traditional vinegar after passing through the *istiḥālah* process. This rational example is readily accepted by the human mind, so the common analogous sequel goes to any porcine lard or other illicit drugs of some form of impure material had transformed and accepted to be used. Secondly, the approval position of the *istiḥālah* method is squarely

in *ʿillah*'s virtue as there is no longer, in this case there is no longer alcohol or wine. If the *ʿillah*'s is unable to be identified by any means in any situation, then the *haram* status will without hesitation be lawful. This is emphasized in some Malikite clerics such as Al-Dusuqiyy (n.d.) in his book, *Ḥāshiyāt al-Dusuqiyyʿalā al-Sharḥ al-Kabīr* who wrote:

(ومسك) بكسر فسكون وأصله دم انعقد لاستحالة إلى صلاح

"(A musk) its origin is blood and has undergone *istiḥālah* for good purpose (perfumery) is permissible."

Al-Zuhayliyy mentioned the elaboration in common about *ʿillah* and *istiḥālah* as follows;

الحكم يدور مع علته لا مع حكمته وجودا وعدما

Meaning: "The determination of law (*ḥukm*) is moving in line with its *ʿillah*, not on its wisdom either with its existence and non-existence." (Al-Zuhayliyy, 1999)

The Zahirite sect opined on the Malikite and Hanafite common argument based on the rationale of *ʿillah*. As it is the key reason for the definition of the *ḥaram* and *ḥalāl* status, it is a central factor that underpins all decision-making of Islamic law or *fatwās*. Because of the previous debate, if the determination is reverted to the original substances without judging the *ʿillah* of the rule placed (Ibnu Ḥazm, 2003), it is impossible to check the authenticity of the status of Islamic law.

Therefore, in all areas of the Islamic discourse, any inventions that can be positively exploited for human use and life enhancement, then any materials produced from animals, plants and other creations should be allowed in virtue of rational justification (Kashim et al., 2015).

v. Shafi'ite Sect

Shafi'ite sect, is recognized as an extra cautious stance holder with regards to *ḥalāl* and *ḥaram* concepts of consumerism, neither food nor non-food as long their origin is unlawful in the eyes of Islamic teaching. In this regard, irrespective of the latter form after the sequel changes took effect on original properties, regardless of whether or not it is thoroughly processed, the position remains repulsive towards the topic of *istiḥālah* in the Syafi'ite sect.

However, few cases were considered concurrently to be enforced as lawful only as accepted by the Shafi'ite sect, in which the *istiḥālah* process deals with the natural process without the interference of human hands. In his book in his book *al-Muhadhdhab fī Fiqh al-Imām al-Shāfiʿiyy*, Al-Shīrāziyy (1992) commented:

ولا يطهر شيئ من النجاسة بالاستحالة إلا شيئان: أحدهما جلد الميتة إذا دبغ وقد دللنا عليه فى موضعه والثانى الخمر إذا استحالت بنفسها خلا فتطهر بذلك.

"Something that have been known impurity will not be purified by *istiḥālah*, unless in two things: Firstly, the skin of the dead animals if it is tanned and we have shown it in its place. Secondly, an alcohol if it was changed (*istiḥālah*) by itself into vinegar, it's considered purein that way."

While Al-Naqīb (1982) written in his book, *ʿUmdāt al-Sālikwa ʿUddāt al-Nāsik* mentioned:

ولا يطهر شيئ من النجاسات، إلا الخمر إذا تخللت الخمر بغير إلقاء شيئ فيها إما بنفسها أو بنقلها من الشمس إلى الظل وعكسه أو بفتح رأسها -طهرت مع أجزاء الدن الملاقية لها، وما فوقها مما أصابته عند الغليان، وإن ألقى فيها شيئ فلا.

Meaning: "And it does not purify anything from filth (unclean), except liquor that turns into vinegar, and tanned skin, and something that turns into insect (such as the worm produced from the stool). If the changed of liquor without mixing anything on it -either by itself or changed the position from under the sun to shady place and vice versa or open the cap- It is still considered purify, but if it was thrown something into it (like gravel), then it is not pure,"

Al-Imām al-Khāṭib Al-Sharbīniyy al-Shāfiʿiyy (1997) enumerated in his book, *Mughnī al-Muḥtāj ilā Maʿrifah fī Maʿānī al-Alfāẓ al-Minhāj:*

ولا يطهر نجس العين إلا خمر تخللت، وكذا إن نقلت من شمس إلى ظل وعكسه فى الأصح، فإن خللت بطرح شيئ فلا، وجلد نجس بالموت فيطهر بدبغه ظاهره وكذا باطنه على المشهور

Meaning: "And the filth is not purified except wine that had been fermented (and transformed) into vinegar, and if it is moved from sunny area to shady area. If the fermentation process mixed with other things, then it is not permissible. And, the dead animal skin is cleaned by tanning inside out."

A number of Hanafite sect clerics argued that the mechanism of purification such as *istiḥālah* should not be regarded as a legitimate tool for purifying filth. In fact, filth is still viewed religiously as impurity, although the essence and form of the replacements have changed fully (Ibnu Qudāmah, 1997). With regard to such reasons from the point of view from the Shafi'ite sect, it is succinctly seen that the legal law remains on the original legal form rule, which is *ḥaram*, irrespective of considering that the present form had completely altered the entire existence and arrangement of the properties on the basis of *istiṣḥāb* without following in depth the rationale based on *ʿillah* or *sabab* of the prohibited legal evidence (Tuan Sidek & Rizwan, 2017).

vi. Hanabilite Sect

A number of selected volumes of books belong to the Hanabilite sect such as the writing of Ibnu Qudāmah (1997) in *Al-Mughnī* mentioned:

ظاهر المذهب، أنه لا يطهر شيئ من النجاسات بالاستحالة، إلا الخمرة، إذا انقلبت بنفسها خلا، وما عداه لا يطهر، كالنجاسات إذا احترقت وصارت رمادا، والخنزير إذا وقع فى الملاحة وصار ملحا. والدخان المترق من وقود النجاسة، والبخارى المتصاعد من الماء النجس إذا اجتمعت منه نداوة على جسم صقيل ثم قطر، فهو نجس. ويتخرج أن تطهر النجاسات كلها بالاستحالة قياسا على الخمرة إذا

انقلبت، وجلود الميتة إذا دبغت، والجلالة إذا حبست، والأول ظاهر المذهب. وقد نهى إمامنا رحمه الله عن الخبز فى تنور شوى فيه خنزير

Meaning: "It is clear that something that filth will not purified by *istiḥālah*, except liquor, if it turns itself into vinegar, otherwise it is not purified; like filth if burned and transform into ashes, pigs if it was dead on the salt field and then dissolving with the salt, and the smoke from the filth burner, water vapor that rising from the stool if it was accumulated over a cloth and then extracted, then it is filth. And all things that filth will be purified by the *qiyās* of *istiḥālah* in liquor transformed into vinegar, tanned animal skins and *jallālah* animals (animals that eat intoxicant foods) that being locked in a cage. Our *imām* (scholar) also forbid us to baked bread in oven that used for roasting pork,"

While Abū al-Khaṭṭāb Al-Kalūzāniyy (2004) mentioned the following in his book:

ولا يطهر شيئ من النجاسات بالاستحالة، إلا الخمرإذا انقلبت بنفسها، فإن خللت لم تطهر. وقيل : تطهر ولا يطهرجلد ما لا يؤكل لحمه بالذكاة، ولا تطهر جلود الميتة بالدباغ فى أصح الروايتين، والأخرى يطهر منها جلد ما كان طاهرا فى حال الحياة

Meaning: "And it is not purified from uncleanness with *istiḥālah*, except alcohol if it changes naturally, if it is changed (mediator) it is not purified; and some said it is purified. And, it is impurity the skin of animal which is cannot be eaten its flesh by slaughtering. The skin of dead animal is unclean even it is undergone tanning process according to strong opinion. And the second opinion said, it cleanses the skin of what was pure in the case of its life,"

Their legal arguments were supported by Al-Mardāwiyy (1955) who also argued that the original impurity status defines the latter type of status, since it believed that the ash resulted from stool was cleaned as well as the dead body of animals such as dogs or pigs that decay in salt water, then human cannot consume that ash or salt water owing to remain on repulsive condition toward *istiḥālah* rather than embrace the new forms.

Centered on the above debate, it is inferred that *istiḥālah*'s four *fiqh* school of thought is split into two main opinions. A group that viewed the status of *istiḥālah* as very strict point of view and another group that expanded its focus on the matter of *istiḥālah*, particularly when extracted from sources of *najāsāt*. A brief diagram below

illustrates the division of the opinion of jurists on *istiḥālah* to determine *ḥalāl* and *ḥaram*.

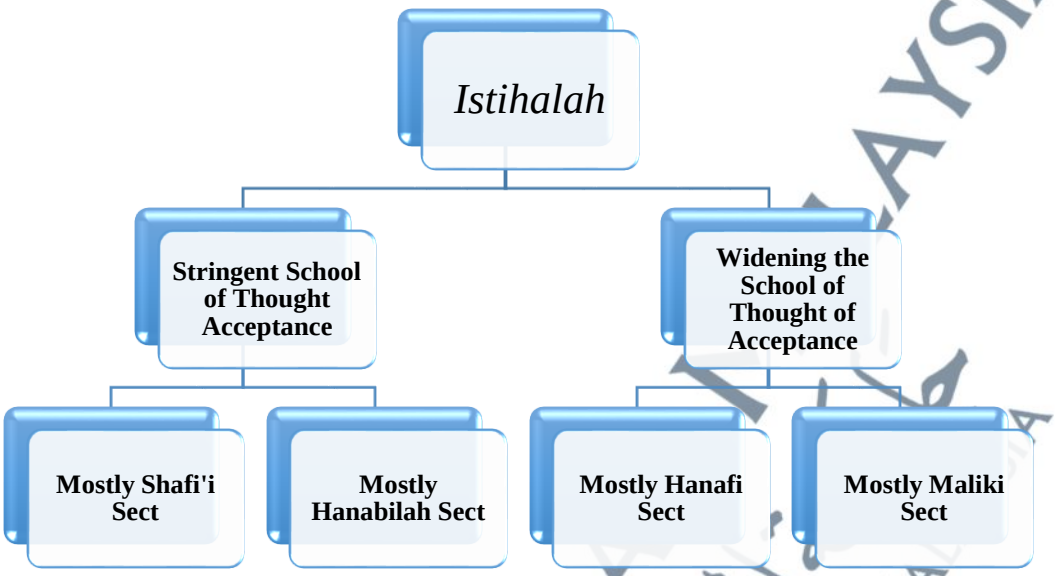

Figure 3.3: The acceptance upon *istiḥālah* in the shed of *fiqh* sect (Researcher's analysis)

Based on the above opinions among jurists in the figure 3.3, the researcher tends to hold the expanding approval school of thought that in accordance with the methodology of *qiyās*, argued by mainly Hanafite sect and Malikite sect in enforcing the legal rule of the items undergoing the mechanism of *istiḥālah*. Moreover, this perspective also tends to be capable of addressing certain contentious pharmaceutical problems in Malaysia, as for now Muslims dominantly hold the capacity of consumers only, however not the halal pharmaceutical manufacturers in Malaysia.

4.10.1.5 Overview Upon *Istihlāk* in the Light of four *Fiqh* Sect

Somehow the idea of *istihlāk* is almost similar to the principle of *istiḥālah*. There are, however, some distinctions observed between the two concepts. For example, stool part drops into pure and clean liquor or oil, woman's breastmilk merges into water and

had been drank and manure base fertilizer of tree, this section reveals about many circumstances that were disclosed in *fiqh* books about *istihlāk* matter by the leading jurists. The following are the sources that jurists deem the debate in Islam relating to *istihlāk*;

First: The author of *Al-Mawād Al-Muḥarramah Al-Najasah fī al-Ghizāʹwa al-Dawāʹ, quoted* IbnuTaymiyyah's opinion that if the wine blends and merges into water and dissolves in it and someone drinks it that person does not drink wine and it is exempted from the Divine Ordinance (*ḥād*) because in terms of odor, color and taste, the properties of water do not change at all. In the similar way, the child who drinks the water is not regarded to be milk kinship for that mother in the case of woman's breastmilk falling into water and dissolving in it (Ḥammād, 2004).

That opinion is built on the virtue of this hadith which mentioned:

عَنِ ابْنِ عُمَرَ قَالَ سَمِعْتُ رَسُولَ اللَّهِ صلى الله عليه وسلم وَهُوَ يُسْأَلُ عَنِ الْمَاءِ يَكُونُ فِى الْفَلاَةِ مِنَ الأَرْضِ وَمَا يَنُوبُهُ مِنَ السِّبَاعِ وَالدَّوَابِّ قَالَ فَقَالَ رَسُولُ اللَّهِ صلى الله عليه وسلم " إِذَا كَانَ الْمَاءُ قُلَّتَيْنِ لَمْ يَحْمِلِ الْخَبَثَ ".

Meaning: Ibnu ʿUmar (May Allah be pleased with him) narrated: I heard Prophet Muhammad (PBUH) while he was being asked about water in an open area of the land, and predators and beast some to it. He said, 'When the water is two *qullah*s it does not carry filth.'
(Hadith. Al-Tirmidhiyy. Al-Jāmiʿ Al-Kabīr. Kitāb al-Ṭahārah. Bāb Minhu Ākhar: #67)

Another hadith that showing *istihlāk* can be deemed as a valid alternative indicator for *ḥalāl* and *ḥaram* determination is *Buḍāʿah* Well, where women in the time of Prophet (PBUH) threw their dirty clothes that used for menstrual pad, dog bones and all stinky stuffs into it, yet Prophet (PBUH) said that the water in that well remain clean and pure. The hadith mentioned:

عَنْ أَبِى سَعِيدٍ الْخُدْرِيِّ أَنَّهُ قِيلَ لِرَسُولِ اللَّهِ صلى الله عليه وسلم أَنَتَوَضَّأُ مِنْ بِئْرِ بُضَاعَةَ وَهِىَ بِئْرٌ يُطْرَحُ فِيهَا الْحِيَضُ وَلَحْمُ الْكِلاَبِ وَالنَّتْنُ فَقَالَ رَسُولُ اللَّهِ صلى الله عليه وسلم " الْمَاءُ طَهُورٌ لاَ يُنَجِّسُهُ شَىْءٌ"

Meaning: Narrated from Abū Saʿīd Al-Khudriyy: "The people asked the Messenger of Allāh: 'Can we perform ablution out of the well *al-Buḍāʿah*, which a well into which menstrual clothes, dead dogs and stinking things were thrown?' He replied, 'water is pure and is not defiled by anything.'"

(Abū Dāud. Sunan Abī Dāud. Kitāb al-Ṭahārah. Bāb fī Bi´ri Buḍāʿah: Juz' 1 #66)

Second:

Al-Imām Ibn Ḥazm (2003) clarified that changing something's names or properties will alter the law. If clean liquor is contaminated by impure items such as manure, blood, wine and the like until after the merging operation, its properties such as colour, taste and odour altered, the clean liquor will be subjected to *ḥaram*. If the water's properties remain the same as in the beginning, it is *ḥalāl* and acceptable for use.

Abū Al-Khaṭṭāb opined that *istihlāk* issue has lengthy clarification because it should be judged based on the quantity of the impure liquor or wine or breastmilk which drops into pure water. Big portion of unlawful substances like manure can influence the clean water to be impure judgement if the manure merges in it. However, if the small amount of unlawful substance drops into it then the opinions differ into two as following, first view, is that the water able to change that little amount of *muḥarram* over the process of diluting, consequently, the water remain halal and pure. Hence, in the case of breastmilk drops into water, there are two opinions, first, the ruling is changing, and another opinion is remaining as it was.

Ibnu Rajab Al-Ḥanbaliyy (n.d.) argued that the issue of *istihlāk* has lengthy clarification. In the case of merging prohibited items with items of purity, the quantity

of each object should be measured. For example, if a lot of impure liquor or wine or breastmilk drops into a small amount of pure water or a significant portion of illegal manure substitution, the small amount of clean water can be affected by impure judgment or vice versa. If a small amount of unlawful material drops into it then the jurists' *ijtihād* differ in two points of view, as follows, first view by Abū al-Khaṭṭāb (Ḥammād, 2004) maintains that water is capable of changing the small amount of *muḥarram* through the diluting process, so the water stays halal and clean. Yet, there are two rulings in the case of breastmilk fall into the water depending on its amount; the first ruling is transformation, the water has become milk and another opinion that the water remains as it was.

Second view, with regard to *istihlāk*, some Hanabilite sect does not hold first opinion, rather the one who drinks water the droplets of breastmilk drop into it and judged as kinship baby (Ḥammād, 2004). The same rule applies if the water in it has been dropped by wine. This concluded that the some Hanabilite sect corresponds positively with the purification theory of *istihlāk*.

In the case of droplets of illegal or impure sources into water without altering any water characteristics, the Shafi'ite sect holds the *qāʿidah* namely *al-makhlūṭ al-maghlub* who judges that drinking water is forbidden according to the *iḥtiyāṭ* foundation, which supports the opinion that the impure substance in the water might not undergo any changes. Al-Imām Mālik and Al-Imām Abū Ḥanīfah, however, assumed that water altered the impure origins and exists as something else that corresponds to the pure state (Al-Manjūr, n.d.).

However, the *istihlāk* method referring to depolymerization is not a close term to this form of decomposition with respect to this study. There are two levels of depolymerization in the manufacture of Enoxaparin: First the elimination of porcine

DNA after precipitation. Second, the breaking of a high molecule into a smaller molecule that can be seen in appendices.

4.10.1.6 Interlink between *Istiḥālah* and *istihlāk*

Istihlāk theory, often compared to the word *istiḥālah* theory in classical literature. While *istiḥālah* and *istihlāk* are two distinct forms of systems, according to Saadan (2009), both have similarities in terms of transforming the existing form to another new form, as well as the new characteristics and terminology.

Anisah & Muhammad Safiri (n.d.)indicated that *istiḥālah* is just a one-form transition method, while *istihlāk* contains two forms that combine together before the depletion sequel with a new name for the latter form appears. The researcher claims, however, that both need different forms, but *istiḥālah* requires a conversion agent, while *istihlāk* can be completely depleted from high molecule to low molecule by chemical agent or dissection phase. In reality, it is similar to depolymerization, *istihlāk* is more technically meant to fractionate from high molecule to low molecule.

The example of *istihlāk* event can be verified by Shafi'i cleric based on their limited assessable knowledge and sophisticated technology unlike today. Al-Nawawiyy mentioned that Al-Ghazāliyy had stated if a fly drops into cuisine on hot pot and completely deteriorates in the food then the food is lawful for Muslim to eat it as the physical body of that fly totally disappears and disable to see it any longer by naked eye.

Moreover, Al-Nawawiyy expounded his own stance about the law of permissibility of eating food, for example when human flesh dropped in the hot pot and being cooked and decomposed completely. The characteristic of human flesh decomposed with provision of its odor, taste and sight of the flesh has disappeared.

Those verifications with using *istihlāk* method of determination of halal status is accepted even by some clerics in Shafi'i sect.

Unlike today, the instance of the *istihlāk* case can be verified by Shafi'ite cleric based on their limited evaluable knowledge and advanced technologies. Al-Ghazāliyy had suggested that if a fly falls into a kitchen hot pot and deteriorates entirely in the meal, then the food is acceptable for Muslims to eat it as the physical body of that fly disappears completely and is unable to be examined by naked eyes (Al-Nawawiyy, n.d.).

In addition, Al-Nawawiyy expounded his own view on the law of permissibility to consume food as human flesh falls into the hot pot, and the feature of human flesh are decomposed and the odor, taste and sight of the flesh has disappeared, it is considered completely decomposed (Al-Nawawiyy, n.d.). Even by certain clerics of the Shafi'i sect, these verifications are approved using the *istihlāk* system in deciding *halal* status.

When the phase of *istihlāk* has been thoroughly evaluated, apparently it has an almost similar definition to decomposition. The principle of *istihlāk* is a general notion of which few terms such as *istihlāk, inqilāb, intiqāl, tabʿiyyāt* and *istibrāʾ*are inferred (Mohammad Aizat, 2009). In fact, some production processes use *istihlāk* word to explain depolymerization due to extreme depletion or dilution as reported by LMWH (Enoxaparin) manufacture.

The usage of *istihlāk* principle is used interchangeably with the theory of *istiḥālah* by Imam Ibnu Taymiyah (Farhani et al., 2014). Likewise, the recognition of *istiḥālah, istihlāk* was not accepted by all *fuqaha '* or jurists. Shafi'ite sect, Hanafite sect and Hanabilite sect are those who are stringent in the implementation of *istihlāk* theory, while those who expand in embracing *istihlāk* theory such as Abū Ḥanīfah, Al-Imām

Mālik (Al-Manjūr, n.d.) Ibn Ḥazm (2003) al-Andalūsiyy, Ibnu Taymiyyah (2004), few students of Malikite and Imām Aḥmad's sects.

The theory of *istihlāk* clearly forms part of the theory of *istiḥālah* (Mohammad Aizat, 2009, Ḥammād, 2009). In her doctoral thesis, Farhani (2017) studied the idea of extreme dilution relating to *istihlāk* and the perfect principle applied to her case study on the status of suture made from catgut according to science and Islamic viewpoints, it was clear that *istihlāk* would partially overlap with the theory of *istiḥālah*. In comparison, another hypothesis is *istihlāk* is intended entirely to *istiḥālah*.

The researcher has similar opinion with that analysis whereby *istihlāk* can be referred as *istiḥālah* process either it is partly or wholly. Despite of some terms reasonably proposed to the term of *istihlāk* by contemporary shariah scholars such as depolymerization, deterioration, extreme dilution, decomposition or depletion, nonetheless, the similar aspects brought by *istiḥālah* and *istihlāk* are the changing of the latter form. The aspects presented by *istiḥālah* and *istihlāk* are shifting (Ḥammād, 2004).

In terms of methods of the process, *istihlāk* and *istiḥālah* can be interrelated, whereby *istihlāk* may be defined as one of the methods of *istiḥālah*. Dr ʿAliyy Muḥammad ʿAliyy ʿUthmān, however, integrated chemical contact (*al-tafāʿul al-kimāwiyy*), which suggests a changing reaction of illegal material such as porcine, supported by advanced technological equipment and techniques. Subsequently, the purified product is produced after the chemical interaction phase on the raw material (ʿUthmān, 2015).

Furthermore, Al-Zuhayliyy (2015) clarified *istihlāk* theory in detailed whereby the overview on the theory of *al-tafāʿūl al-kimāwiyy* is embedded in *istihlāk* itself, for instance, self-consumption (*istihlāk al-dhātiyy*), composition with merging from one to

another substance (*istihlāk al-fanniyy li al-shay´ maʿa ghayrihi*), composition of dirt entity mixed into portion of clean entity (*istihlāk bi al-mukātharah*) and composition with manufacture (*istihlāk bi al-taṣnīʿ*) which belong to a process of breaking high molecules to low molecules with intervention of technology as well.

4.10.1.7 Theory Structure of *Istiḥālah* Process

Istiḥālah process consists of three elements; raw materials, conversion agent and finished product as displayed by diagram below (Mohd Aizat et al, 2009, Nuryani & Mohd Kashim, 2014).

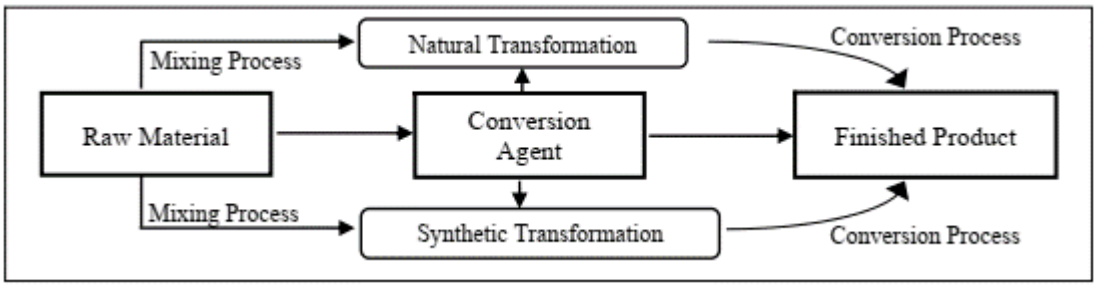

Figure 3.4: Theory of *istiḥālah* structure.
Source: (Mohammad Aizat Jamaludin et al., 2011) Reprinted with permission of the author.

Figure 3.4 shows the process of the *istiḥālah* which consist three main components. They are a) raw material b) conversion agent c) finish product. This structure completely explains the merging process as well as conversion process. The author also considers the opinion of majority group which agrees with utilizing conversion agent whether natural or unnatural intervention as the process of *istiḥālah.* (Mohammad Aizat, 2009).

i) Categories of *Istiḥālah*

The researcher observes the categories on *istiḥālah* among the studies, and classified *istiḥālah* into two large divisions, namely (1) complete transformation (*Istiḥālah saḥīḥah*) (2) incomplete transformation (*Istiḥālah fāsidah*). Mohd Aizat and Jasimah in their study tested *istiḥālah fāsidah* with using two kinds of transforming agents; a) *ḥalal* agent such as chemical to produce wine b) *ḥarām* agent; for example, animal blood to improve the quality of foods. Both *istiḥālah fāsidah* had been using *ḥalāl* raw material such as grape or chicken, meat, yogurt. Eventually, the final products are regarded as *ḥaram* due to the *ḥaram* signs remain available after tested in laboratory. The researcher opines that *ʿillah* of the *ḥaram* determination are accessible or still detected after transformed, following *istiḥālah fāsidah*.

Ultimately, since the *ḥaram* components remain available despite *istiḥālah fāsidah* processes and confirmed by the laboratory tests, the final goods are known as *ḥaram*. The researcher claims that as a consequence of *istiḥālah fāsidah*, *ʿillah* of the *ḥaram* determination is due to presence of *ḥaram* substance despite transformation.

Meanwhile *Istiḥālah ṣaḥīḥah*, explained from the tested versions that the final products were confirmed to be *ḥalāl* products. The methods can be defined in three ways (Tuan Sidek & Rizwan, 2017):

1) Raw material is *ḥalāl*, transforming agent is *ḥalāl* and will produce *ḥalāl* product.
2) Raw material is *ḥaram*, transforming agent is *ḥalāl* but the final product is *ḥalāl* such as pig which decayed in salt pool and transformed into salt completely.

3) Raw material is *ḥalāl*, transforming agent is *ḥaram* but the final result is *ḥalāl* for instance the fruits from a tree which had been fertilized with animal stools.

These three models alluded by Tuan Sidek and Rizwan's research can be deemed appropriate to be used nowadays, not to mention the exponential development of science and technology is capable of proving whether or not the *istiḥālah* mechanism is fully taking place. The researcher was intrigued by the approach that could tie together both a strict place of views and an extended line of reasoning. It is in fact necessary to see the *ḥaram* signs of substance still exist or vanish, it could be done with the obtaining of validated approval through advance laboratory technologies.

i. The Theory Structure of *Istihlāk*

Scientifically, depolymerization refers to the reduction of a polymer into its smaller component of monomers (Medical Dictionary, n.d.). There are other related terms that refer to depolymerization such as silicate melt (advances in high-pressure technology for geographical applications), lignin (current opinion in environmental sustainability, 2010), polymerization (archie E. Hamielec, 1989), cellulose, silicate and degradation (biological and environmental hazards, risks and disaster, 2016), enzyme (bioresource technology, 2017) and viscosity (environmental inorganic chemistry for engineers, 2017).

The figure below explains about depolymerization or *istihlāk* process of manufacturing LMWH:

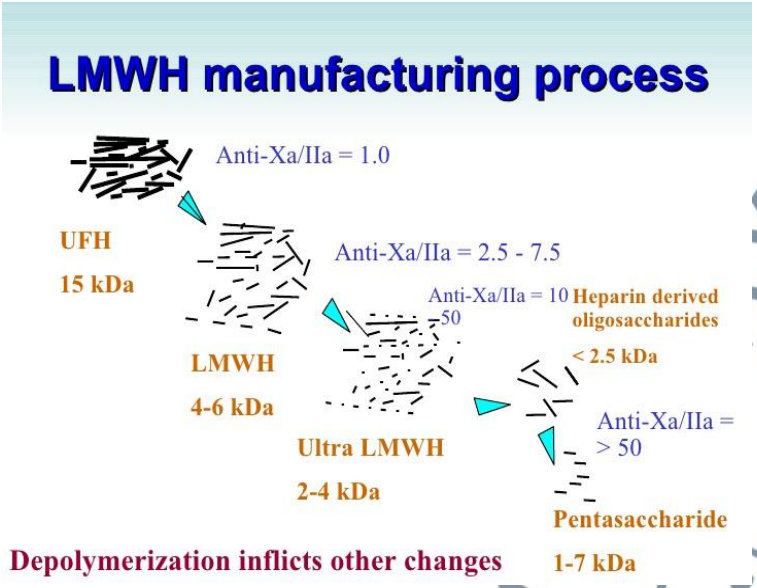

Figure 3.5: The figure shows the depolymerization process from heparin source either bovine or porcine (Bala, 2009).

The depolymerization process that induces other improvements from heparin to LMWH or ultra LMWH, known as Fondaparinux, is seen in Figure 3.5. The mechanism is clearly the split from higher molecular to lower molecular weight. The heparin source is derived from either porcine or bovine, as shown by Bala (2009).

Basically, the process of depolymerization which can be defined as *istihlāk* from *fiqh* perspective is the process of conversion high molecule to lower molecule, as depolymerization embedded methods of chemical composition, for instance chemical reaction called electrolysis is the process of breaking water molecule to gas and hydrogen (Chen, 2015).

In addition, according to the form of LMWH, such as Enoxaparin, Tinzaparin, Deltaparin and its similar, the process of depolymerization of LMWH varies. The topic of this study is enoxaparin, which then focuses on its mechanism to explore the

interaction between the development process of enoxaparin and shariah compliance.

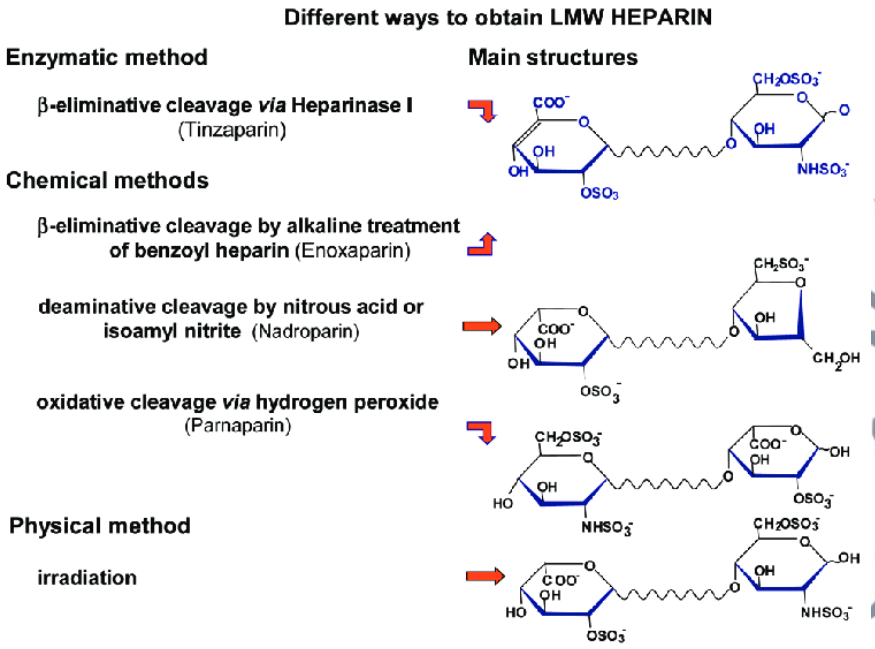

Figure 3.6: Different ways to obtain LMWH either with enzymatic method or chemical method or physical method and main chemical structures to each method.
(Torri. G &Naggi. A, 2016)

The methods of accessing LMWH from heparin are illustrated in figure 3.6. As indicated, eliminative cleavage by alkaline treatment of benzoyl heparin, Enoxaparin was obtained by chemical procedure. Tinzaparin is obtained by the enzymatic process of exchanging chemical structure with the chemical structure of Enoxaparin.

The depolymerization system specifically demonstrates that due to high molecular weight heparin, degraded by fractionation phase through chemical process, there are relationship to *istihlāk* structure theory according to *fiqh* discipline in relation to LMWH manufacturing process. Farhani (2017) confirms this by saying that *istihlāk* meant by splitting the water molecule into gas as follows:

$$H_2O \rightarrow H_2 + O_2$$

Water → Hydrogen + Oxygen

4.10.1.8 Application of Products Manufactured in Current Practices through *Istihlāk* and *Istiḥālah*

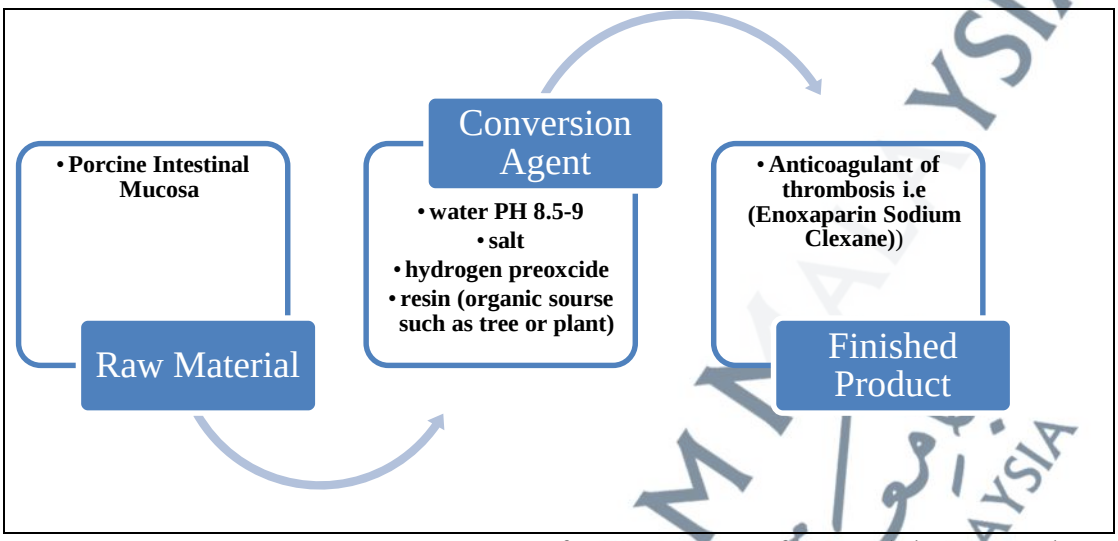

Figure 3.7: *Istiḥālah* structural theory of LMWH manufacture (The researcher's analysis)

Figure 3.7 demonstrates the structural principle of *istiḥālah* that uses oxidation as a conversion agent to convert from crude heparin to pure heparin resulting no porcine DNA residues. These steps are named as two chemical steps, namely oxidation and decolor treatment, to purify porcine impurities. In order to completely deteriorate crude heparin, precipitation later takes place.

A salt solution was centrifuged to obtain heparin pretreatment liquid, adding hydrogen peroxide and then added to the strong base anion exchange resin column in order to change from porcine mucosal tissue and transformed into sodium, crude heparin was purified with sodium chloride dissolved in water with PH 8.5 to 9 (Method for Producing Enoxaparin Sodium by Using Crude Sodium Heparin Products, n.d.). Due to non-illegal sources engaging with this conversion agent used, herein is classified as *halal*. In turn, the researcher assumes that no residual *haram* object in the final product arising from this process, and it can be said that it is appropriate to use it.

4.10.1.9 Status according to Islamic Law of No Residual Porcine DNA in Medicine

Since DNA is the storage of living information, it is an important component of halal or haram product determination in Islam. The development of few modern techniques to detect porcine DNA in foods or pharmaceuticals has helped technology prove the origin of either halal or non-halal sources.

Mohammad Aizat, (2009) included in his master's thesis methods of food analysis for meat detection for example, Fourier Transform Infrared Spectroscopy (FTIR), Electronic Nose Technology (EN), Differential Scanning Calorimetry (DSC), polymerase chain reaction (PCR), enzyme-linked immunosorbent assay (ELISA), electrophoresis (Kim & Shelef, 1986), liquid chromatography (Monte, 1988) dot blot hybridization (Ebbehøj & Thomsen, 1991), randomly amplified polymorphic DNA PCR (Calvo & Osta, 2001) and species-specific PCR (Herman, 2001).

The ultimate function of all those above mentioned assisted-technology methods for porcine detection indicate that the presence of porcine tissue or component is a determinant factor to impose Islamic law through detecting the original source of the products.

Regardless of many methods or techniques for modifying the products, as long as porcine DNA has been identified in any host, human, animal, fruit or any living cell, from the perspective of shariah, the law will subsequently be subject to *ḥaram* status. That *ḥaram* status is justified by a *qāʿidah fiqhiyyah* named "blocking the evils is better than bringing benefits" (*darʾu al-mafāsid awlā min jalbi al-maṣāliḥ*) explains the usage of transplanting porcine cell or genetic through the process of biotechnology of DNA

able to trigger Muslims to fall into prohibitions area. In turn, the researcher concludes that two elements with regards to this situation:

1) Malaysia is regarded as a rich country with natural sources and many quality foods options, whether from halal, nutritious and tasty elements, are available. The GMF status in the food sector is appropriate for use in Islamic countries such as Malaysia unless the sources derived from prohibited sources such as pigs, dogs and all prohibited animals in the Shafi'ite sect are included. In addition, all nutritional innovations infused with pig-tasting products are therefore forbidden.
2) The significance of DNA in the medicinal industry is that medicines recognize Islamic law. For eg, Enoxaparin sodium confirmed as free of porcine DNA is a scientifically validated proof that can be identified from the perspective of *fiqh* as pure *istiḥālah kuliyyah*. Therefore, the compound does not raise any issue in recommending that it is acceptable from the standpoint of *fiqh*. However, if the enforcement of the legal permissibility rule with regard to enoxaparin sodium could cause a problematic state, then additional legal facts could be used as rationale for considering reality fiqh (*fiqh al-wāqiʿ*) and prioritization *fiqh* (*fiqh al-awlawiyyāt*) for O&G unit that includes prescribing it for mothers at risk of VTE event.

4.10.1.10 The Implication if Malaysian Fatwa Embraces *Istiḥālah* Justification in Medicines

Istiḥālah is a central tenet that is inapplicable in Malaysia by jurists as the Shafi'ite sect actively opposes it in enforcing the *fatwā*. If *istiḥālah* is agreed to be implemented in the imposition of *fatwā* in Malaysia in drugs, the researcher assured that

act may have consequences for everyday Malaysian Muslim life. It is helpful to remember in advance that the researchers concentrated on *istiḥālah* in drugs rather than food as medication is the focus of this study.

If MCMKI agrees to accept *istiḥālah* and *istihlāk* as methods of filth purification in the medicine area, the most prominent implication involved would be many modern medicine cases currently solved if it uses unlawful substances. Legal law of unlawful medicines such as LMWH, for example, is entitled to authorization to use without the requirement to use the conditions of *ḍarūrah* and *ḥājah* in medical situations (Mahaiyadin & Osman, 2017).

Nevertheless, with regard to the rationale of MCMKI in Malaysia against unlawful source in products is prone to the principle of *iḥtiyāṭ*, then it could be claimed that there is significance with regard to the role of MCMKI that is capable of blocking any evil intention in the commercial marketing of porcine as a product base. Therefore, with regard to the necessity and urgency of using LMWH for risky mothers, the researcher continues to recommend the use of medicines from illegitimate suppliers to comply with adapted guidelines in the cosmetic sector as indicated by ʿAbd al-Rab (2018) that will be disclosed soon in this *istiḥālah* principle.

To sum up this discussion, despite of *istiḥālah, it* also can be a legal principle in *ijtihād* for contemporary issues, likewise to *ḍarūrah* concept. However, stemming from Malaysia as a culture and environment of mind-setting is prone to Shafi'ite view which holds extra caution on the original substance of products, then *istiḥālah* can be a supported argument for *ḍarūrah* and *ḥājah* situations which are needed for the medicines. Probably that conclusion of *istiḥālah* and *istihlāk* issues suitable due to "customary usage is the determining factor" (*al-ʿādah muḥakkamah*) can be relied on it

as legal argument when the issue is new and never happen in the past (Al-Bahūsayn, 2012).

To sum up this topic, arising from a philosophy held in Malaysia by Islamic authorities as its culture and environment of mind-setting is inclined to the Shafi'ite view that takes an extra caution on the original content of products, so *istiḥālah* may be an endorsed rationale for *ḍarūrah* and *ḥājah* circumstances that are needed for the drugs, rather than the primary reason for products that had been undergone transformation process.

4.10.2 Principle of *Ḍarūrah* for Thromboprophylaxis of VTE during Pregnancy and Puerperium

The debate on this subject addresses *ḍarūrah* as the main theory for the resolution of VTE thromboprophylaxis during pregnancy and puerperium. In this analysis, instead of using English translation as required or important, the researcher uses *ḍarūrah* as the clarification of it more comprehensively in the sense of *fiqh* debate, instead of using English translation as necessary or essential.

4.10.2.1 Definition of *Ḍarūrah* Literally

According to Ibnu Manẓūr in Lisān Al-ʿArab, *al-ḍarūrah* came out from Arabic language from pattern (*wazan*) of *faʿūlah* of *al-ḍarar*.

ضره –ضررا - ضُرَه-ضرورة –ضروراء–ضاروراء–فالضرورة هى الضرر

Al-ḍarar denotes bad situation which related to *ḍar* (verbal noun) which defines it as opposite to benefit. Meanwhile, *ḍur* (noun) means "bad condition, body is getting weaker and decreasing of money" (Ibnu Manẓūr, 1883). Al-Aṣfaḥāniyy (2009) added, "a bad situation toward oneself due to lack of knowledge, strength and well-being".

While *al-ḍarrah* refers to pressed situation(*shiddatu al-ḥāl*), Al-Fayrūz Abādiyy (2005) describes as similar as to that, in which "*al-ḍarar* brings the definition of difficulty or hardship or critical situation (*ḍīq*) and compelled or to make or become tighter (*ḍayyiq*)".

Ibnu Manẓūr, Ibnu Fāris (1979) defined "*iḍṭirār* which is called *iḥtiyāj*. *Iḥitiyāj* came from rootword *ḥawaja* is related to *al-iḍtirār ilā al-shayʹ* or *al-iḥtiyāj ilā al-shayʹ* which means need to something". Al-Aṣfaḥāniyy (2009) detailed the word of *al-iḍṭirār* based on the *wazan* of *al-iftiʿāl* from the word *al-ḍarar* which means "someone who bear upon *ḍarar* whether it appears due to internal elements such as hunger and illness or external element for example force (*ikrāh*)".

Al-Munāwiyy (1972) described hadith *lā ḍarar wa lā dirār* in his book, *Fayd Al-Qadīr* which shows us the differences between *ḍarar* and *ḍirār* as shown in following table:

Table 2.1: The differences between *lā ḍarar wa lā dirār* (The table is researcher's illustration)

Lā Ḍarar	***Lā Ḍirār***
Example: *Lā yaḍurruh al-rajul* Meaning: Don't harm the man	Example: *Lā yaḍurru kullu wāhidin min humā sāḥibuhumā* Meaning: Don't harm each other
The action done by one person	The action done by two persons together
The beginning of the action	The effect obtained from the action
The action by one side followed by evil or corruption (*mafsadah*)	The action of evil happened with confront way and it is intended by two sides

In a precise connotation, Al-Jurjāniyy (2004) defined "*ḍarūrah* as *mashaqqah* resulted from *ḍarar* which is inescapable or unavoidable at all". Furthermore, *ḍarūrah* also denotes to "someone who possess need, objective or goal or desire (*dhū ḥājah*) because pressed by a critical situation" (Al-Rāziyy, 1986). According to Ibrāhīm Ānīs et al (2004) in *Al-Muʿjam Al-Wasiṭ*, *ḍarūrah* means "need (*ḥājah*) and pressure (*shiddah*) in a situation which cannot be avoided from those *ḥājah* and *shiddah"*.

The one who experiences the bad situation (*ḍarar*) called *muḍṭar* in Arabic linguistically. *Muḍṭar* is being used in lingual context widely which means the one who carries the *ḍarar* or the one who refuses the pressured condition (Ibnu Manẓūr, 1883). *Muḍṭar* is the person who carries the *ḍarar* on him. This meaning is widely used, referring to those who refuse the *ḍarar* and the ones who accept *ḍarar* (Ibnu Al-ʿArabiyy, 2003). All those authors inscribed that the definition of *ḍarūrah* has close relation to *ḍarar* (verb) whilst *ḍarūrah* refers to noun.

In conclusion, in terms of literal definition, the connotation of *ḍarūrah* only declared in desperate situation which forces someone to fall into pressured situation. Some scholars such as Al-Aṣfaḥāniyy and Ibnu Manẓūr mention, *ḍarūrah* situation will oppress someone's life tighter either financially or food or knowledge internally and externally, but those statements appeared in examples not adhered to certain characteristics of *ḍarūrah*. Indeed, the literal definition still needs to be combined with technical definition to produce a comprehensive understanding of the definition.

In this research context, the term *ḍarūrah* specifically refers to a situation where women in pregnancy and puerperium will be prescribed with LMWH to prevent blood clot. The management of VTE related to pregnancy and puerperium will be divided into two parts; prevention and treatment. As early as preventive measures, the high-risk and moderate risk women of getting VTE are the group that can be considered as *ḍarūrah* situation to receive the porcine base prescription LMWH anticoagulant.

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4.10.2.2 *Ḍarūrah* according to Islamic *Fiqh* Scholars

Technically, the definition of *ḍarūrah* will be viewed from *fiqh* and *usul fiqh* contexts. For the first part, the definition from *fiqh* perspective is encountered as follows;

i. Hanafite sect:

Al-Jaṣṣāṣ (1992) clarified *ḍarūrah* from Quranic verse "*illā māʹuḍ ṭurir tum*: al-Baqarah: 173" to a situation when somebody might die if he does not eat the prohibited food and consume anything prohibited (at that time) to save his/her live. In order to save the *al-ḍarūriyyat al-khamsah*, the researcher claims that Al-Jaṣṣāṣ' explanation proved to us that all sorts of illicit outlets, either food or non-food, must be used for that reason. In parallel, Al-Ḥamwiyy (1985) suggested that the magnitude of *ḍarūrah* is determined by the impact of damage caused by discarded prohibited sources.

ii. Malikite sect:

Ibnu al-ʿArabiyy (2003) elaborated the in Surah Al-Baqarah: 145, the situation of *ḍarūrah* caused by few factors such as oppression from unjust (*ẓālim*) people, starvation and poverty-stricken. Ibnu Juzaiyy (n.d.) determined *ḍarūrah* situation means people whofear of destruction (*khawf al-halak*) and they are not advised to be patient in that emergency time.

Meanwhile, Al-Dardīr (n.d.) defined that *ḍarūrah* in a concise statement as "fearful of destruction of souls either certainty (*yaqīn*an) or uncertain (*ẓannan*)". People are able to recognize the level of fearful feeling against disaster on the basis of these explanations, and human beings recognize their constraint to moving closer to death, such as the final line of convincing circumstance to apply to the threatened elements. Thus, the legal rule of *haram* is lifted in that case.

iii. Shaf'ite sect:

The definition given by Imām al-Shāfiʿiyy's does not explicitly explain the definition of *ḍarūrah*, but rather details of multiple situations that are considered in tightening a person's life into *ḍarūrah*.

المضطر يكون بالموضع، لا طعام فيه معه ولا شيئ يسد فورة جوعه، من لبن وما أشبهه، ويبلغه الجوع ما يخاف منه الموت، أو يضفعه ويضره أو يعتل أو يكون ماشيا فيضعف عن بلوغ حيث يريد، أو راكبا فيضعف عن ركوب دابته،أو ما فى هذا المعنى من الضرر البين، فأى هذا ناله فله أن يأكل من المحرم.

"The individual (*muḍṭar*) in an area has no food and something that can fill his famine like milk and so on. He faces a famine fearful of causing death or suffering from illness even though it does not die, or makes it weak and harmful or painful, or if he is able to walk, his condition remains weak to reach his destination, if he is able to ride, he is unable to ride his vehicle or any (situation) in this meaning of an explicit harm, then if the *muḍṭar* got any those situations, thus he can eat the prohibited one," (Al-Shāfiʿiyy, 2001).

The researcher accentuates the readers on the basis of the aforementioned understanding by Al-Imām Al-Shāfiʿiyy, the concept of Al-Imām Al-Shāfiʿiyy is more prone to the form of *ḍarūrah*, not to those who need it. Al-Suyūṭiyy (1983) defined *ḍarūrah* as a situation in which individuals are allowed to consume the forbidden one in severe circumstances that can kill themselves.

Meanwhile, Al-Imām Al-Zarkashiyy (1985) described *ḍarūrah* as a level where he/she will die, almost kill or loss of body components if anyone does not consider using the forbidden food or fabric. That is the degree to which the person can fall into the condition of *ḍarūrah*.

The researcher assumes, on a final note, that this sect specifically describes *ḍarūrah* as a state of death and most certainly would risk one's soul.

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iv. Hanabilite school:

Ibnu Qudāmah (1997) and Al-Maqdisiyy (2003) reported the concept of *ḍarūrah* implies that those who are considered to be *muḍtar*, such as people who felt/thought that they would die from starvation because they did not eat the forbidden food in critical time or have no ability to walk or drive the vehicle to the destination.

The researcher claims that there is a connection between the views of the technically described Shafi'ite, Malikite and Hanabile concepts that rely more on the permissibility of consuming forbidden foods or riding vehicles in order to find food to survive. The exemption to utilize the forbidden one is allowed for *ḍarūriyyāt* situation with aiming to release away the difficult condition with certainty or afraid slipping into it (Yaakob, 2011)

Today, contemporary Shariah scholars such as Wahbah al-Zuhayliyy, Jamīl Mubārak, Usāmah Muḥammad Ṣallābiyy, Mohd Hapiz Mahayaidin worked extensively on the subject of *ḍarūrah* and described the term *ḍarūrah* relevant to today's phenomena. Yaʿqūb ʿAbdul Wahhāb al-Bahūsayn said that *ḍarūrah* degree is greater than *ḥājah*.

Wahbah Al-Zuhayliyy (1985) denoted *ḍarūrah* as:

"الضرورة هى أن تطرأ على الإنسان حالة من الخطر أو المشقة الشديدة حيث يخاف حدث ضرر أو أذى بالنفس أو بالعضو أو بالعرض أو بالعقل أو بالمال وتوابعها، ويتعين أو يباح عندئذ ارتكاب الحرام، أوترك الواجب، أو تأخيره عن وقته دفعا للضرر عنه فى غالب ظنه ضمن قيود الشرع."

Meaning: "*Al-Ḍarūrah* is a dangerous situation or critical difficulty that overtaketo a person in which it is feared to be harmful or ill in the soul, the lineage, the dignity, the intellect, the property and the person concerned. In such case, such person shall or is required to do the illegal, abandoning obligatory or to delay a claim from his time in order to avoid certain harms in accordance with his usual habits, subject to the principles of *sharaʿ*."

Yūsuf Qāsim (1993) preferred to define *ḍarūrah*:

"خوف الهلاك على النفس أو المال"

Meaning: "fearful of destruction of souls or wealth".

Meanwhile, Jamīl Mubārak (2003) defined *ḍarūrah*:

خوف الهلاك أو الضرار الشديد على أحد الضروريات للنفس أو الغير يقينا أو ظنا إن لم يفعل ما يدفع به الهلاك أو الضرار الشديد

Meaning: "Fearful of destruction or severe damage which deny any of *al-darūriyyāt* of live or other than live certainly or uncertainly if abandoning the actions that able to refute the destruction or severe damage."

Al-Jīzāniyy (2007) detailed his explanation of *ḍarūrah* term to:

"الحاجة الشديدة الملجئة إلى ارتكاب محظور شرعى"

Meaning: "A situation of certain and specific, pressed need has compelled human being to use the prohibitions is allowed in the sight of *shara'*"

Mohd Hapiz (2016) later came and endorsed the idea of the principle from Jamil Mubarak, whereby the least line of *ḍarūrah* is any condition that results in hard life over Muslims' lives without waiting with assurance to fall into ruin. Mohd Hapiz applied that *ḍarūrah* connotation in his research entitled *Al-Ḍarūrah Al-Syariyyah dan Aplikasinya dalam Penggunaan Muḥarramāt Masa kini* and denoted *ḍarūrah* term as:

"Difficult situation which *sharaʿ* opened space up to facilitate the *mudtar* either for doing the *muḥarramāt* or abandoning the *wajibāt*"

4.10.2.3 *Ḍarūrah* according to *Uṣūl Fiqh* Scholars

According to legal jurists, *maqāṣid* is divided into three big divisions such as *ḍarūriyyāt*, *ḥājiyyāt* and *taḥsiniyyāt* (Al-Shāṭibiyy, 2010, Al-Ghazāliyy, 2008, ʿAbd al-Salām, 1991). Al-Ghazāliyy in *Al-Mustaṣfā fīʿIlm Uṣūl al-Fiqh* elaborates in detail the concept of *maṣlaḥah* for novel issues particularly *maṣlaḥah mursalah* topic while the concept of *maṣlaḥah* issue measured to attain human's *ḍarūriyyāt*. Al-Ghazāliyy's idea

is about the *ḍarūrah* has integrated to *al-ḍarūriyyāt al-khamsah* and the issues to be justified with *maṣlaḥah* theory and shall be characterized as *ḍarūrah*, *kulliyyah* and *qaṭʿiyyah* (Al-Shawkāniyy, 2000).

The researcher noted that in the maqasidic discipline, the previous legal jurists (*uṣūliyy*) described the term *ḍarūrah* as *ḍarūriyyāt*. The strong distinction between the two words is *ḍarūriyyāt* is the highest goal that *sharaʿ* seeks to maintain, while *ḍarūrah* is the sole important instrument for calculating a condition known as *al-ḍarūriyyāt al-khamsah*, in order to attain the goal of *sharīʿah*.

4.10.2.4 Definition of *Ḍarūrah Al-Ṭibbiyyah*

As for now in the shariah sense, the term medical (*al-ṭibbiyyah*) will therefore be explained here.

i. Literal Definition of *Al-Ṭibbiyyah*

Al-Ṭibbiyyah derives from the word *ṭib* in the killing chapter (*bāb qatlun*) (Al-Fayyūmiyy, n.d.). While *al-ṭib* is knowledge of something and information about that matter. The person who is trained in the specialty of *al-ṭib* is referred to in Arabic as *rajul al-ṭib* or *ṭabīb*, which means a specialist in medical specialization (Ibnu Fāris, 1979).

ii. Technical Definition of *Al-Ṭibbiyyah*

According to Ibnu Sīnā, *al-ṭibbiyah* is a body of knowledge in which identifying human body through the things which healthpromotion of and health restoration. Dr ʿAbd al-Raḥmān bin ʿUthmān Al-Jalʿud (2008) expounds that *al-ḍarūrah al-ṭibbiyah* is such a compelled situation which is feared to harm on human life. Therefore, experienced person is needed to rescue or treat or handle that emergency to rescue priceless human lives.

The researcher observes that, the term of *al-ḍarūrah al-ṭibbiyyah* referred to a crucial condition in preserving humans' health as well as preserving humans' lives which must involve medical doctor' supervision for further medical treatment either as prevention or therapeutic stage.

In medical field, cases most likely lead to death either high-risk or moderate risk or low risk such as mothers who are at risk of VTE shall receive the treatment which recommended by professional medical doctors not from layman's understanding.

Al-Ṭibbiyah is a body of knowledge through which the human body is defined by things that foster wellbeing and restore health (Ibnu Sīnā, 1999).

Dr. ʿAbd al-Raḥmān bin ʿUthmān Al-Jalʿūd (2008) notes that *al-ḍarūrah al-ṭibbiyyah* is such a convincing circumstance that human life is feared to be affected. Therefore, in order to administer the emergency to save priceless human lives, experienced people or experts are required.

The researcher states that *al-ḍarūrah al-ṭibbiyyah* term applied to a critical condition in maintaining the health of humans as well as preserving the lives, which require monitoring by medical doctors for further medical care as a preventive or therapeutic level of management.

In medical sector, lethal or catastrophic incidences either high-risk or moderate risk or low risk such as mothers who are at risk of VTE shall receive the care which recommended by trained medical doctors not from layman's understanding or based on civilians' testimonial.

4.10.2.5 The Preferred (*Tarjīḥ*) Definition of *Ḍarūrah*

The researcher starts by stressing some final assumptions from the work that *ḍarūrah* can be categorized into two cases, looking at all the meanings given above;

first, death. Second, life-threatening.With regard to the knowledge of event (*marātib al-idrāk*) as acquired by jurists in judging the degree of *ḍarūrah* and *ḥājah*, the researcher noticed a remarkable information highlighted by Al-Shanqīṭiyy, (n.d.)in deriving the legal law as below:

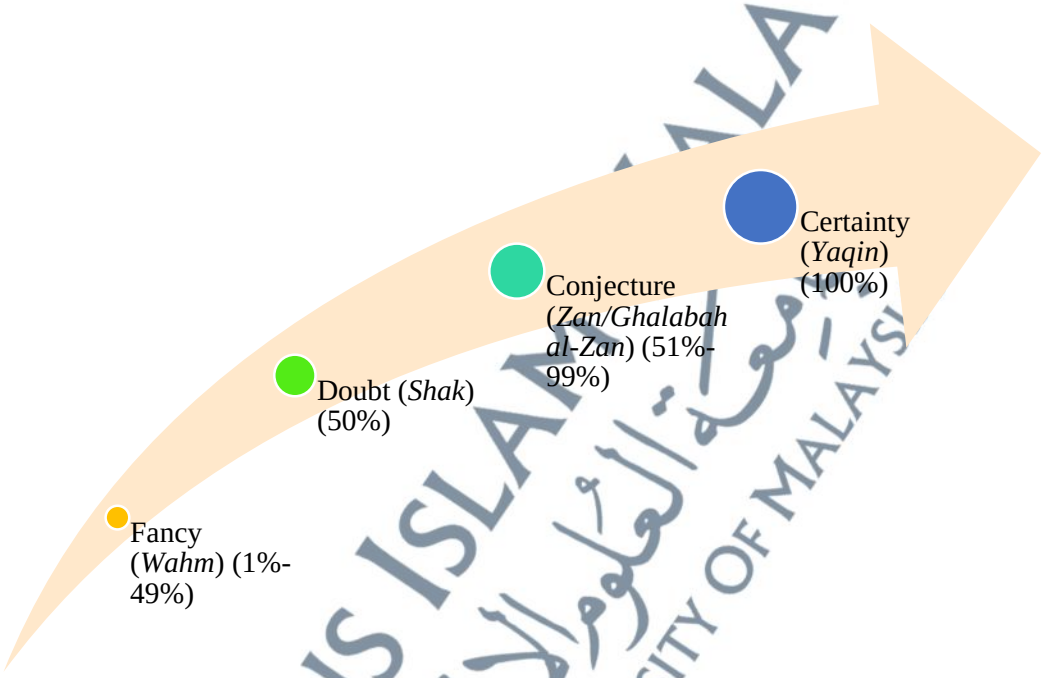

Figure 3.8: The percentage of knowing of event according to Al-Shanqīṭiyy (n.d)

The percentage of each degree of knowledge of the possibility of events as seen in Figure 3.8. The degree of *yaqīn* that is equal to 100 percent is nearly impossible to determine that VTE would occur during pregnancy or puerperium. This is because LMWH is also used as preventive medication, during this study few medical experts interviewed emphasized that LMWH is used and practically proven thus believed with the preventive dose given to women at risk would reduce maternal mortality. In comparison, *rājih* is around 51 percent or *ghalabah al-ẓan* or also called *rājih* till 99 percent indicates the level of confidence calculated as typically something that will almost happen depending on available information and previous experience.

While *shak* is accounted for 50% probability: for example, one promised to go out with her/his mate. Then, that person knew that his/her friend was in the house but

for that person, there was a sense of possibility that his friend would probably go out or probably do not. In exchange, according to Al-Shanqīṭiyy, that sense of possibility called *shak*. Finally, fancy or *wahm* approximately accounted for 1% until 49%, which means unusual to occur or in Arabic called *nādir*.

In general, legal evidence in shariah gives an exception to those who at the stage of certainty and conjecture almost lost their lives to eat unclean and impure alternatives, which we understand is equivalent to the risk of VTE during pregnancy and puerperium.

Therefore, in this research context, the researcher prefers to put forward the preferred definition that "fear to be devastated beginning with pressed need (*al-ḥājah al-māssah*) which is the minimum level of *ḍarūrah* to consume the prohibitions in terms of threatened condition, the management is as early as prevention due to conjecture (*ghalabah al-ẓan*) level purposely to save *al-ḍarūriyyāt al-khamsah*".

This description is endorsed by Jamil Mubarak (2003) in his book *Naẓariyyah al-Ḍarūrah al-Sharʿiyyah ḥudūduhā wa ḍawābiṭuhā* which stating that *ḥājah* condition able to push a *mukallaf* condition into a strain, complicated, fragile, trouble, is the minimum line of the sense of *ḍarūrah*.

4.10.2.6 Fundamental of *Ḍarūrah* in Islam

The definition of *ḍarūrah* in Islam is derived from Al-Quran, hadith, *ijmāʿ*, *ʿamal al-ṣaḥabah* and *istiqraʹ*. Such sources specifically point out the extreme conditions that human beings are in. In the meantime, it is seen that the yardstick of *ḍarūrah* stands out to calculate the critical degree of human condition. At the same time, *ḍarūrah* speaks at the level of mitigation since it is the focus of this study.

First: Al-Quran

These are verses of Al-Quran which directly clarify about *ḍarūrah* situations and the permissibility legal rule to consume forbidden foods such as porcine, animal carcass and blood for the sake of saving or preserve human lives. There are five verses in Al-Quran mentioned about *ḍarūrah* situations as following:

i. First: Al-Baqarah 2: 173

﴿إِنَّمَا حَرَّمَ عَلَيْكُمُ ٱلْمَيْتَةَ وَٱلدَّمَ وَلَحْمَ ٱلْخِنزِيرِ وَمَآ أُهِلَّ بِهِۦ لِغَيْرِ ٱللَّهِ ۖ فَمَنِ ٱضْطُرَّ غَيْرَ بَاغٍ وَلَا عَادٍ فَلَآ إِثْمَ عَلَيْهِ ۚ إِنَّ ٱللَّهَ غَفُورٌ رَّحِيمٌ﴾

Meaning: "He has only forbidden to you dead animals, blood, the flesh of swine, and that which has been dedicated to other than Allah. But whoever is forced [by necessity], neither desiring [it] nor transgressing [its limit], there is no sin upon him. Indeed, Allah is Forgiving and Merciful."

(Al-Quran. Al-Baqarah 2: 173)

﴿فمن اضطر﴾applies to the coercive situation under which Muslims were excluded from the original legal law (*ʿazīmah*) and permitted to consume prohibited foods. Owing to life preservation principal, they are not classified as committing sin against Allah. The preservation of human life is considered to be sacred and noble. Al-Jaṣṣāṣ (1992) interpreted the verse denoted for all ranges, including foods or non-foods such as pharmaceuticals and cosmetics.

وأطلق الإباحة فى بعضها بوجود الضرورة من غيرشرط ولا صفة

Meaning: "The permissibility (*ibaḥah*) exists provisional to the present of necessity (*ḍarūrah*) without provision or charaateristic".

Ibn ʿAṭiyyah (2001) also clarified the word with all types of forbidden thingsas:

أكره أو غلب على أكل هذه هذه المحرمات

Meaning: "The one who forced by *ḍarūrah* to eat animal carcass and all types of forbidden ones"

i. Second: Al-Maidah 5: 3

﴿حُرِّمَتۡ عَلَيۡكُمُ ٱلۡمَيۡتَةُ وَٱلدَّمُ وَلَحۡمُ ٱلۡخِنزِيرِ وَمَآ أُهِلَّ لِغَيۡرِ ٱللَّهِ بِهِۦ وَٱلۡمُنۡخَنِقَةُ وَٱلۡمَوۡقُوذَةُ وَٱلۡمُتَرَدِّيَةُ وَٱلنَّطِيحَةُ وَمَآ أَكَلَ ٱلسَّبُعُ إِلَّا مَا ذَكَّيۡتُمۡ وَمَا ذُبِحَ عَلَى ٱلنُّصُبِ وَأَن تَسۡتَقۡسِمُواْ بِٱلۡأَزۡلَٰمِۚ ذَٰلِكُمۡ فِسۡقٌۗ ٱلۡيَوۡمَ يَئِسَ ٱلَّذِينَ كَفَرُواْ مِن دِينِكُمۡ فَلَا تَخۡشَوۡهُمۡ وَٱخۡشَوۡنِۚ ٱلۡيَوۡمَ أَكۡمَلۡتُ لَكُمۡ دِينَكُمۡ وَأَتۡمَمۡتُ عَلَيۡكُمۡ نِعۡمَتِي وَرَضِيتُ لَكُمُ ٱلۡإِسۡلَٰمَ دِينٗاۚ فَمَنِ ٱضۡطُرَّ فِي مَخۡمَصَةٍ غَيۡرَ مُتَجَانِفٖ لِّإِثۡمٖ فَإِنَّ ٱللَّهَ غَفُورٞ رَّحِيمٞ﴾

Meaning: "Prohibited to you are dead animals, blood, the flesh of swine, and that which has been dedicated to other than Allah, and [those animals] killed by strangling or by a violent blow or by a head-long fall or by the goring of horns, and those from which a wild animal has eaten, except what you [are able to] slaughter [before its death], and those which are sacrificed on stone altars, and [prohibited is] that you seek decision through divining arrows. That is grave disobedience. This day those who disbelieve have despaired of [defeating] your religion; so fear them not, but fear Me. This day I have perfected for you your religion and completed My favor upon you and have approved for you Islam as religion. But whoever is forced by severe hunger with no inclination to sin - then indeed, Allah is Forgiving and Merciful."

(Al-Quran. Al-Mā´idah 5: 3)

Al-Māwardiyy (n.d.) and Al-Rāziyy (1981) interpreted this term ﴿فَمَنِ ٱضۡطُرَّ﴾ as a condition where one sinks into intense poverty and causes him to eat prohibited things so he can no long dying in starvation. Ibn ʿAṭiyyah, (2001) embraced the verse as a condition in which the halal edible foods are not discovered and the body continues to lose energy, power and survival, thereby this condition encourages one to consume the forbidden one with the exception of sin.

The next three verses supported the *ḍarūrah* theory that The Lawgiver offered as a way out for troubles human beings;

ii. Third: Al-Anʿām 6: 145, Al-Naḥl 16: 115, Al-Anʿām 6: 119

﴿قُل لَّآ أَجِدُ فِي مَآ أُوحِيَ إِلَيَّ مُحَرَّمًا عَلَىٰ طَاعِمٖ يَطۡعَمُهُۥٓ إِلَّآ أَن يَكُونَ مَيۡتَةً أَوۡ دَمٗا مَّسۡفُوحًا أَوۡ لَحۡمَ خِنزِيرٖ فَإِنَّهُۥ رِجۡسٌ أَوۡ فِسۡقًا أُهِلَّ لِغَيۡرِ ٱللَّهِ بِهِۦۚ فَمَنِ ٱضۡطُرَّ غَيۡرَ بَاغٖ وَلَا عَادٖ فَإِنَّ رَبَّكَ غَفُورٞ رَّحِيمٞ﴾

Meaning: “Say, "I do not find within that which was revealed to me [anything] forbidden to one who would eat it unless it be a dead animal or blood spilled out or the flesh of swine - for indeed, it is impure - or it be [that slaughtered in] disobedience, dedicated to other than Allah. But whoever is forced [by necessity], neither desiring [it] nor transgressing [its limit], then indeed, your Lord is Forgiving and Merciful.”

(Al-Quran. Al-Anʿām 6: 145)

﴿إِنَّمَا حَرَّمَ عَلَيْكُمُ ٱلْمَيْتَةَ وَٱلدَّمَ وَلَحْمَ ٱلْخِنزِيرِ وَمَآ أُهِلَّ لِغَيْرِ ٱللَّهِ بِهِۦ ۖ فَمَنِ ٱضْطُرَّ غَيْرَ بَاغٍ وَلَا عَادٍ فَإِنَّ ٱللَّهَ غَفُورٌ رَّحِيمٌ﴾

Meaning: “He has only forbidden to you dead animals, blood, the flesh of swine, and that which has been dedicated to other than Allah. But whoever is forced [by necessity], neither desiring [it] nor transgressing (its limit) - then indeed, Allah is Forgiving and Merciful.”

(Al-Quran. Al-Nahl 16: 115)

﴿وَمَا لَكُمْ أَلَّا تَأْكُلُوا۟ مِمَّا ذُكِرَ ٱسْمُ ٱللَّهِ عَلَيْهِ وَقَدْ فَصَّلَ لَكُم مَّا حَرَّمَ عَلَيْكُمْ إِلَّا مَا ٱضْطُرِرْتُمْ إِلَيْهِ ۗ وَإِنَّ كَثِيرًا لَّيُضِلُّونَ بِأَهْوَآئِهِم بِغَيْرِ عِلْمٍ ۗ إِنَّ رَبَّكَ هُوَ أَعْلَمُ بِٱلْمُعْتَدِينَ﴾

Meaning: “And why should you not eat of that upon which the name of Allah has been mentioned while He has explained in detail to you what He has forbidden you, excepting that to which you are compelled. And indeed, do many lead [others] astray through their [own] inclinations without knowledge. Indeed, your Lord - He is most knowing of the transgressors.”

(Al-Quran. Al-Anʿām 6: 119)

From abovementioned holy verses of Al-Quran, the researcher able to point out that;

1. *Ḍarūrah* is a legitimate measure to deduce Islamic rulings for the sake of preserving the *al-ḍarūriyyāt al-khamsah.*
2. The determination of rulings in Islam has taken on the truth or evidences or fact of certain issues. The definition of *ʿurf* can be interpreted into the experiences of medical doctors in medical cases.

Second: Hadith

There are several hadiths which elaborated *ḍarūrah* situation allows the consumption of forbidden things. Among of them as below:

i. **First**

عن الفجيع العامرى أنه أتى رسول الله صلى الله عليه وسلم فقال: مايحل لنا من الميتة، قال: ما طعامكم، قلنا: نغتبق نصطبح. قال أبونعيم فسره لى عقبة قدحغدوة وقدحعشية. قال ذاك – وأبى الجوع. فأحل لعم الميتة على هذه الحال. قال أبو داود الغبوق من أخى النهار والصبوح من أول النهار

Meaning: Al-Fajīʿ came to the Messenger of Allah (PBUH) and asked: Is not dead meat lawful for us? He said: What is your food? We said: Some food in the evening and some in the morning. AbūNuʿaym said: ʿUqbah explained it to me saying: a cup (of milk) in the morning and a cup in the evening; this does not satisfy the hunger. So made the carrion lawful for them in this condition. Abū Daud said: *Ghabūq* is a drink in the evening and *ṣabūh* is a drink in the morning.
(Hadith. Abū Dāud. Sunan Abī Dāud. Kitāb al-Aṭʿimah. Bāb fī al-Muḍṭar ilā al-Maytah: #3817)

Al-Shawkāniyy (1397) in his book, *Nayl al-Awṭār min AsrārMuntaqa al-Akhbār* explained that this hadīth supported that *al-muḍṭar* to eat forbidden foods would be excluded from sin or wrong doing in Islam.

That hadith recorded by Al-ʿAiniyy (755H) and explained that the exemption to eat unlawful foods, in that context animal carcass, in *ḍarūrah* situation can be at complete full and become energetic again (Al-ʿAiniyy, 2001).

ii. **Second**

عَنْ أَنَسٍ ـ رضى الله عنه ـ أَنَّ نَاسًا اجْتَوَوْا فِى الْمَدِينَةِ فَأَمَرَهُمُ النَّبِىُّ صلى الله عليه وسلم أَنْ يَلْحَقُوا بِرَاعِيهِ ـ يَعْنِى الإِبِلَ ـ فَيَشْرَبُوا مِنْ أَلْبَانِهَا وَأَبْوَالِهاَ فَلَحِقُوا بِرَاعِيهِ فَشَرِبُوا مِنْ أَلْبَانِهَا وَأَبْوَالِهَا حَتَّى صَلَحَتْ أَبْدَانُهُمْ فَقَتَلُوا الرَّاعِىَ وَسَاقُوا الإِبِلَ فَبَلَغَ النَّبِىَّ صلى الله عليه وسلم فَبَعَثَ فِى طَلَبِهِمْ فَجِىءَ بِهِمْ فَقَطَعَ أَيْدِيَهُمْ وَأَرْجُلَهُمْ

.

Meaning: "Narrated from Anas, the climate of Medina did not suit some people, so the Prophet ordered them to follow his shepherd, i.e. his camels, and drink their milk and

urine (as a medicine). So, they followed the shepherd that is the camels and drank their milk and urine till their bodies became healthy. Then they killed the shepherd and drove away the camels. When the news reached the Prophet, he sent some people in their pursuit. When they were brought, he cut their hands and feet and their eyes were branded with heated pieces of iron."
(Hadith. Al-Bukhāriyy. Sunan al-Bukhāriyy. Kitāb al-Ṭib. Bāb al-Dawā´ bi Abwāl al-Ibil: #5686)

The hadith *saḥīḥ* narrated from Al-Bukhāriyy which informs us the healing disease with camel urine clearly explains to us that Prophet (PBUH) allows to seek unlawful medicine in hardship times.

Third: *Ijmāʿ*

The *ijmāʿ* confessed that this shariah has no objective of giving burdens or difficulties on the adherents. The nature of Islam is convenience and well-being of all people in the whole worldwide. Therefore, all types of burdens shall be eliminated. People know their limitation and capability to survive in hardship. Once *ḍarūrah* level is reached, the aspect of *al-ḍarūrah al-khamsah* were threaten and none of shariah scholars deny the legitimacy of *ḍarūrah* as parameter to deduce Islamic ruling (Al-Shāṭibiyy, 2010).

4.10.2.7 Basic Concept of *Ḍarūrahal-Shar'iyyah*

The concept of *al-ḍarūrah al-shar'iyyah* is discussed amongst jurists in different scopes such as food, pharmaceutical, forced (*ikrāh*) by tyrannous, drought and poverty. The researcher will focus on types of *ḍarūrah*, provision of *ḍarūrah* and the components that integrate directly to the concept of *ḍarūrah shar'iyyah*.

i. Situations of *Ḍarūrah*

Surah al-Baqarah verse 173 was interpreted by leading jurists relating to *ḍarūrah* concept. Al-Qurṭubiyy (2006) pointed out that the circumstances of *ḍarūrah* are undoubtedly inescapable from the force of tyrannies and starving in exceedingly difficult conditions.

Two considerations of *ḍarūrah* were implemented by Fakhr Al-Rāziyy (1981) to abolish the prohibition as follows; first, extreme hunger and no *ḥalāl* food accompanying it. Second, whether someone or someone is pushing them. Ibnu Al-ʿArabiyy (2003) concluded that prohibited objects are exempted from tyranny, hunger and poverty in a case such as *ikrāh*, in which there are no halal alternatives. Until the components of *ikrāh* vanish, permissibility is enforced.

Wahbah al-Zuhayliyy, one of the contemporary scholars of shariah who expands the reach of *ḍarūrah* into fourteen conditions such as food hunger and thirst (hunger and thirst), counseling, courage (*ikrāh*), forgetfulness (*nisyān*), ignorance (*jahl*), hardship (*ḥaraj*) and widespread difficulty (*ʿumūm al-balwā*), travel (*safar*), sickness (*maraḍ*), natural vulnerability (*al-naqṣ al-ṭabīʿiyy*).

In his doctoral thesis, Mohd Hapiz (2016) clarified the scope of *ḍarūrah* today, especially in Malaysia, which is substantially covered by foods, pharmaceuticals and cosmetics. Wahbah al-Zuhayliyy and Mohd Hapiz have addressed in detail the degree of *ḍarūrah* in the determination of Islamic law on some contentious topics such as critical (*ḍarūrah*) and semi-critical (*ḍīq shadīd*).

Al-Jalʿūd, another contemporary Shariah scholar, introduced the concept of *ḍarūrah al-sharʿiyyah* in medical issues that are permitted under the restriction of darurah. For example, while male doctors are permitted to see the awrah of the patients,

the scope that can be investigated in the relevant area either before or after surgery (Al-Jalʿūd, 2008).

i. Provisions (*Ḍawābiṭ*) of *Ḍarūrah*

In issuing *fatwā*, provisions (*ḍawābiṭ*) of *ḍarūrah* are required because Muslims are required to follow and comply with it as outlined by Shariah law. A hadith narrated by Abū Muḥammad ʿAbd Allāh bin ʿAmr Al-ʿAs (May Allah be pleased with both) The Messenger of Allah (PBUH) said said:

لا يؤمن أحدكم حتى يكون حواه تبعا لما جئت به

Meaning: "The Messenger of Allah (peace and blessings of Allah be upon him) said, 'None of you [truly] believes until his desires are subservient to that which I have brought.'"

(Hadith. Al-Nawawiyy. Al-Arbaʿūn al-Nawawiyyah, Kitāb Al-Ḥujjah: #41)

The *fatwā* given on the basis of *ḍarūrah* may be deceptive without adhering to the *ḍawābiṭ* of *ḍarūrah* in the process of issuing legal rule specifically on contemporary issues. The *ḍawābiṭ* of *ḍarūrah* allegedly connects the *maṣlaḥah* of issues. Contemporary Shariah scholau (Mubarak, 2003) have listed several *ḍawābiṭ* of *ḍarūrah* to be examined before the law of *ḍarūrah* are formed under some circumstances as below**;**

1. The *ḍarūrah* should be certain (*muḥaqqiqah*) instead of uncertain (*mutawahhamah*).
2. After all types of halal alternatives are sought and proved unable to solve the dilemma, the forbidden allegedly should be permitted.
3. The coerced situation shall not worsen after taking the prohibition or leaving the obligatory one.
4. The *ḍarūrah* rule is used to fulfil the objective of shariah.

5. The solution to the implementation of the *ḍarūrah* law does not entail another kind of *ḍarūrah* condition comparable to the previous one.

While Wahbah Al-Zuhayliyy (1985) detailed the *ḍawābiṭ of ḍarūrah* in another explanation for instance;

1. The minimum degree of *ḍarūrah* to accept the forbidden should be reached due to permissibility.
2. The medicine should be prescribed in medical treatment by a trusted practitioner (*thiqah*) and even justice (*ʿadl*) who can be judged by his religion, contacts and knowledge.

Yūsuf Qāsim (1993) forwarded *ḍawābiṭ al-ḍarūrah* into two categories; first, *ḍawābiṭ* for compelled person. Second, *ḍawābiṭ* for *ḍarūrah* situation. Three *ḍawābiṭ* of *ḍarūrah* were discussed in detail by Nādiah Rāziyy (2014); first, using the prohibited one since there are no halal alternatives available without breaching into fundamentals of Islamic faith (*ʿaqīdah*) such as the prohibition of disbelief (*kufr*), murder and prostitution. Second, consuming the forbidden within *ḍarūrah* limitation as quoted in *qāʿidah fiqhiyyah* named *al-ḍarūrah tuqaddar biqadarihā*. Third, never adhering *ḍarūrah* rule for misdeed' intention.

ii. *Fiqh* Terminologies Related to *Ḍarūrah al-Sharʿiyyah*

This sub-division aims to draw a proper distinction that are often prevalent in the respect of *ḍarūrah* with others' *fiqh* terminologies. This is necessary because without being sharply defined, the terminologies will lead to confusion because those

fiqh terminologies namely *mashaqqah*, *rukhṣah*, *ḥājah*, *istiḥsān* and *maṣlahah* have a goal in common with *ḍarūrah* which is to remove the burden of human beings.

a. *Ḍarūrah* and its Relation to *Mashaqqah*

In this research, the researcher will refer the word of difficult and hardship to *mashaqqah*. *Mashaqqah* relates to *ḍarūrah* as *mashaqqah* is the justification of *ḍarūrah*. In fact, the meaning of *ḍarūrah* is interpreted together with *mashaqqah* (Al-Jīzāniyy, 2007). Literally, *mashaqqah* also defined as *juhd* (struggle), *ʿinā´* (survive) (Ibnu Manẓūr, 1883), *ʿusr* (hard), *saʿb* (difficult) (Ibrāhīm et al., 2004).

وَتَحۡمِلُ أَثۡقَالَكُمۡ إِلَىٰ بَلَدٖ لَّمۡ تَكُونُواْ بَٰلِغِيهِ إِلَّا بِشِقِّ ٱلۡأَنفُسِۚ إِنَّ رَبَّكُمۡ لَرَءُوفٞ رَّحِيمٞ

Meaning: "And they carry your heavy loads to regions which you could not reach but with distress of the souls; most surely your Lord is Compassionate, Merciful."
(Al-Quran. Al-Naḥl 16: 7)

The word of *shaqqah* comes from Surah Naḥl verse7 which mentioned *bishiqqi al-anfus*. Through that connotation, the researcher views that *mashaqqah* refers to a pressed or compelled state and demand a suitable action to release it.

1. Type of *Mashaqqah*

Mashaqqah in *fiqh* discipline is tied up with a provision that the *mashaqqah* goes beyond the *mukallaf'* ability and capability to bear with all the burdens, eventually, giving up all his works. Below are among of jurists who diversifies the types of *mashaqqah*.

Ibnu Nujaym delineated that *mashaqqah* consists of two types (Ibnu Nujaym, 1999):

First: *Mashaqqah* which not affect any daily activities such as coldness when taking ablution, hunger and tiring when fasting in the hot days of Ramaḍān, difficulties when travelling to perform pilgrimage.

Second: *Mashaqqah* which will endanger *mukallaf's* life or loss any part of the body components.

In the meantime, the *mashaqqah* implied by Al-Shāṭibiyy applies to all acts that lead to the loss of any part of the body for a lifetime or most likely trigger a morbidity against the doer himself or his wealth. In too many situations, the *mashaqqah* is beyond the usual scenario. If the situation does not reflect to that meaning of *mashaqqah*, then it is called inconvenience or in Arabic *kulfah* (Al-Shāṭibiyy, 2010).

In order to avoid difficulties and hardships, ʿIzz Al-Dīn ʿAbd al-Salām (1991) explained that *mashaqqah ʿaẓīmah faḍīhah* is the critical moment to apply *rukhṣah* immediately as mandatory. Wahbah Al-Zuhayliyy (1985)developed the explanations of*al-mashaqqah ghayr al-muʿtādah* into the public level, for example, ordinary men are typically unable to remainin *mashaqqah* continuously while their everyday tasks are suspended, as well as certain works may be defected following few instances such as *wiṣāl* fasting and assiduity on *qiyāmu al-layl*.

In this research context, pregnancy and puerperium are both conditions with unexpected *mashaqqah* may appear upon women. Regardless to deny the physiological changes in women's bodies during pregnant and puerperium in terms of hormones and blood coagulation, the researcher concludes that, the phases of pregnancy and puerperium are included in *mashaqqah al-muʿtādah.* However, if there are obstetrical problems such as having few risk factors of VTE then the *mashaqqah* turn to *mashaqqah ghayr al-muʿtādah* which homogenously to *kulfah*.

This is due to certain changes may pose risk states of diseases although some pregnant women experience normal biologychanges such as the platelet count falls progressively or changes of coagulation system which lead to physiological hypercoagulable state which is happen as preparation for hemostasis following delivery (Soma-pillay et al., 2016).

2. Causes of *Mashaqqah*

Causes of *mashaqqah* stipulated as religiously inabilities (*al-aʿdhār al-sharʿiyyah*) and caused by divinely (*samawiyyah*) causes or *ghayru al-samawiyyah* causes (Al-Būrnū, 1996). Al-Suyūṭiyy (1983) and Ibn Nujaym expound that, there are seven causes of *al-mashaqqahal-samawiyyah* which are beyond human abilities for instance, childhood (*sighār*), insane (*junūn*), semi-insane (*ʿatah*), forget (*nisyān*), sleep (*nawm*), faint (*ighmāʿ*), slavery (*riqq*), illness (*maraḍ*), death (*mawt*), menstruation (*hayd*) and post-natal blood (*nifās*). While, causes of *ghayru al-samawiyyah* included conditions which occur due to human hand or human's ignorance about Islamic rulings such as travelling (*safar*), mistake (*khaṭāʾ*) and force (*ikrāh*) (Ibnu Nujaym, 1999).

Hence, the situation which created by that causes of *mashaqqah* is *ḍarūrah*. When *ḍarūrah* situation is there, then the Islamic ruling will be acting accordance to the situation. When a *mukallaf* is threaten from any aspect of *al-ḍarūriyyāt al-khamsah*, then prohibited things are allowed with purpose to save the *maqāṣid sharʿiyyah* either permitted to consume unlawful substances or leaving the mandatory ruling one.

3. Relation *Mashaqqah* to *Ḍarūrah*

The meaning of *mashaqqah* reflected how it closely relates to *ḍarūrah*. *Ḍarūrah* is one aspect of *mashaqqah* which can affect critically Muslim's life. *Ḍarūrah* is

directly related to *mashaqqah* feature which demand an emergency aid where to the *ḍarūrah* legal rule is tolerable. The emergency aid will appear as mentioned in a *qāʿdah fiqhiyyah kulliyyah* called *al-ḍarūrāt tubīḥ al-maḥẓurāt* that will be discussed in the next sub-topic.

In this research, risks that had been diagnosed either as high-risk groups or moderate risk group may consider as causes of *mashaqqah*. In addition to that, *qāʿdah fiqhiyyah* namely difficulty begets facility (*al-mashaqqah tajlibu al-taysīr*) plays a vital role in determining the legal rule for women whom are at risk to receive thromboprophylaxis with LMWH.

b. *Ḍarūrah* and its Relation to *Rukhṣah*

Rukhṣah originated from letters *al-raʹ*, *al-khaʹ* and *al-ṣad* which literally means soft and opposite of hard (Ibnu Fāris, 1979). *Rukhṣah* also means licensing from Allāh to His servants in certain situations (Ibnu Manẓūr, 1883). Epistemologically, *rukhṣah* has several definitions according to jurists such as al-Bazdawiyy al-Ḥanafiyy who opined that *rukhṣah* is a situation being built based on disabilities and shortcomings of mankind and it is allowed due to the present of *muḥarram* (Al-Bazdawiyy, n.d.).

Al-Subkiyy forwarded that *rukhṣah* is "The law of origin had been changed because of some excuses in concerning to eliminate the burdens provided by the causes of original rule (*ʿazīmah*) is there for example, to eating forbidden one" (Al-Subkiyy, 1999).

While Al-Subkiyy delineated in precise and concise a connotation that the actions of *mukallaf* in *rukhṣah* time either consuming the forbidden one or skip the obligatory. *ʿAzīmah* means the initial Islamic Law sent down by The Creator of the Universe, Allāh for mankind as a life rule in all aspects of life including worship,

marriage, financial, criminal and legislation. Likewise, *rukhṣah* is the license to not perform the initial command of Allah due to *mashaqqah* circumstances (Al-Subkiyy, 1999).

Regarding to aforementioned definition of *rukhṣah* and *ʿazīmah*, the researcher opines that the definitions of *rukhṣah* is not only applied whenever the *mashaqqah* occurs with the present of unlawful source such as allowed to eat the forbidden to live the life, instead *rukhṣah* is also applicable to the lessen the obligatory or dained to Muslim *mukallaf* for instance, during travel more than 90km, *farḍ* prayer is allowed to perform in two *rakaʿāt*, instead of four *rakaʿāt*.

However, the *rukhṣah* doctrine used in circumstances by which *qiyās* applications are considered too. *Rukhṣah* do not extend its spectrum to the mild degree of difficulties such as uncomfortable situation due to runny nose in Ramadan month, finger's illness, hard work in the sun, difficult for finding halal work as well as no motivation to study (Hapiz, 2016).

1. Types of *Rukhṣah*

Islamic jurists categorized the types of *rukhṣah* accordance to its prioritization, Islamic law of *ʿazīmah* and *rukhṣah* based on general or specific as well as following;

a. Types of *Rukhṣah* based on Prioritization

Under the heading of *rukhṣah* based on prioritization, there are four types of *rukhṣah* as following (Al-Suyūṭiyy, 1983):

1. Mandatory (*wājibah*) *rukhṣah*; For example, eating carcass or death body to save life.
2. Recommended (*Mandūbah*) *rukhṣah*; Such as performing *qaṣr* in prayer for traveller.

3. Allowed (*Mubah*) *Rukhṣah*; such as doing the buy and sell transaction, rental and loan.
4. *Rukhṣah* based on prioritization (*khilāf al-awlā*) for example, break the fasting for travelers whom there is no any trouble or *mashaqqah* in the journey.

b. Type of *Rukhṣah* based on *ʿAzīmah*

According to Abū Zahrah (n.d.), he divided the type of *rukhṣah* into two divisions based on the types of Islamic Law on *ʿazīmah* as below:

i) If the *ʿazīmah* prohibits a *mukallaf* to perform an action, thus the *rukhṣah* is that mukallaf allowed to do it (*rukhṣah al-fiʿl*). For example, a male doctor is excused to see and check female patient's *awrah* on necessity degree, while the *ʿazīmah* is a man is not allowed to see women's *awrah*. Seeing *ʿawrah* of patient categorized in *ḥājah* situation while eating unlawful food or medicine is deemed as *ḍarūrah* condition.

ii) If the *ʿazīmah* insists a *mukallaf* to perform it, then the *rukhṣah*is that *mukallaf* allowed to leave it (*rukhṣah al-tark*). For instance, a Muslim disable to perform prayer while standing straight. However, due to illness on him/her, then, that *mukallaf* is allowed to perform his prayer according to his ability. Other example excused to perform Friday prayer due to illness or declaration of *kufr* in forcing situation whereas faith to Allāh remains in the heart.

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c. Type of *Rukhṣah* based on General or Specific

Ibn Rajab (795H) delineated *rukhṣah* is classified according to general or specific *rukhṣah* (Ibnu Rajab, n.d.). Ibnu ʿĀshūr (2004) detailed this classification based on persistent and temporary such as:

i. General-Persistent *Rukhṣah*:

This type of *rukhṣah* is exemplified in *bayʿ al-salam* issue, which is prohibited principally in shariah, instead by observing the need of the people to it, then it considered into *rukhṣah* of this type.

ii. Specific-Temporary *Rukhṣah*:

This kind of *rukhṣah* is applicable when one faces the situation of *ḍarūrah*. Thus, the forbidden things in this situation is allowed necessarily either to consume it or to leave the obligatory.

iii. General-Temporary *Rukhṣah*:

Ibnuʿ Āshūr clarified this category of *rukhṣah* had been forgotten by many shariah scholars which demonstrated by the example of renting on *waqaf* land.

2. Position of *Rukhṣah* in Islam

According to Surah al-Mā´idah: 101, Al-Shāṭibiyy (2010) described that there is a forgiven area (*martabah al-ʿafw*) which is not mentioned between halal and haram. He interpreted Surah al-Tawbah: 43 to those *mufti*s or *mujtahid* who deduces *fatwā* to be an in exact *ijtihād* may be forgiven as following:

﴿عَفَا ٱللَّهُ عَن كَلِمَ أَذِنتَلَهُمۡ حَتَّىٰ يَتَبَيَّنَ لَكَ ٱلَّذِينَ صَدَقُواْ وَتَعۡلَمَ ٱلۡكَٰذِبِينَ ٤٣﴾

Meaning: “Allah pardon you! Why did you give them leave until those who spoke the truth had become manifest to you and you had known the liars?”

(Al-Quran. Al-Tawbah 9: 43)

In addition to that, mistake (*al-khaṭāʾ*) in *ijtihād*, it is classified as *al-ʿafwu*. *Rukhṣah* can be inferred is applicable to the people whom being in certain situations such as mistake or compelled. Abū Zahrah (n.d.) delineated that original ruling for *rukhṣah* is permissible, even it stressed as donation and gift from Our God, The Al-Mighty, Allāh to His servants.

3. Causes of *Rukhṣah*

Rukhṣah is applied in certain circumstances for instance, *mashaqqah* or hardship such as in travelling journey (*safar*), illness, eating the forbidden for *muḍṭar* (Al-Qarāfiyy, 2004). Hardship and hurdles, named as disabilities approved by *sharaʿ* (*aʿdhār al-sharʿiyyah*) such as ignorance (*jahl*), forget (*nisyān*), travel (*safar*), disease (*maraḍ*), compelled (*ikrāh*), widespread hardship (*ʿumūm al-balwā*), shortcoming (*naqṣ*) and necessity (*iḍṭirār*) (Al-Jizani, 2007). *Iḍṭirār* or *ḍarūrah* is an urgent key point to embrace that *rukhṣah* in that situation and *rukhṣah* built based on the presence of *mashaqqah* (ʿAlīyy Ḥaydar, 2004).

4. Relation *Rukhṣah* and *Ḍarūrah*

Of the causes of *rukhṣah*, *iḍṭirār* or *ḍarūrah* is one of them. *Rukhṣah* is a general concept than *ḍarūrah* in term of its scope. *Rukhṣah* is applicable in a broader scope which is obligations for example eating porcine flesh in *ḍarūrah* time or permissible (*mubaḥ*) matters such as lessen *farḍ* prayer from four *rakaʿah* to two *rakaʿah* during *safar*. While *ḍarūrah* covers crucial situation, which preserve any of *al-ḍarūriyyāt al-khamsah* in *maqāṣid al-shariʿah*. Hence, the relation between *rukhṣah* and *ḍarūrah* is in term of their scopes in which *rukhṣah* is general than *ḍarūrah* (Al-Jizānīyy, 2007).

c. *Ḍarūrah* and its Relation to *Ḥājah*

To investigate the second objective of this research, the researcher proposes *ḥājah* as one of shariah principle which applicable to find solution which aligned with *fiqh* upon LMWH to moderate risk mothers. However, there would be a specific section discussed upon *ḥājah* principle in greater detail in subsequent subdivision. Having meticulous insight into the relation between *ḍarūrah* and *ḥājah* would yield useful information about the position of *ḥājah* at the meantime.

Briefly speaking, linguistic such as Ibnu Fāris (1979) stated that *ḥājah* denoted to a crucial state for something (*al-iḍṭirar ila al-shay'*). Usually the process of explaining the definition of *al-ḥājah* immediately concern itself with *hājiyyāt* connotation as done by early prominent jurist, as among them is Al-Shāṭibiyy. In order to critically define and distinguish the meaning of *hājiyyāt* indistinct definition, the readers can refer to description under the sub-division entitled types of *maṣlaḥah* at page 217.

Besides, throughout this research, the term *ḥājah* is used by later jurists to refer to a need when the condition does not indeed, reach the degree of *ḍarūrah*. However, it will affect people to live in harsh and hard life if that need being ever-present in denial state (Abū Zahrah, n.d., Al-Zarqā', 1989). This is typical definition which often chosen as the default approach by later prominent *fiqh* scholars as mentioned in *ḥājah* topic at page 226. Because of this, the researcher decides to simplify the definition of *ḥājah* at this subchapter. Futher elaboration of *ḥājah* will be in next subdivision in greater detail.

Our question here currently is how *ḥājah* could be related directly with *ḍarūrah* principle? Here are some reviews by the researcher regarding the areas that is thought could be connected immediately between *ḍarūrah* and *ḥājah*. The relation between *ḍarūrah* and *ḥājah* can be concluded in this three elements (Hapiz, 2016);

First: *Mashaqqah* or critical can be categorized into two types, as following:

i. **Critical time** which adopt to a situation that no other approaches offered except opting the forbidden one provided such option able to maintain any *maṣlaḥah* or *maqāṣid al-sharīʿah* is assured. The researcher had discussed this issue in the division of medical treatment with porcine substance according to four *fiqh* sects at page 107-120.

ii. **Semi-critical** means a condition that can be expressed as *ḥājah* is required in daily life of a man. The researcher commences with some example regarding that kind of *ḥājah* such as transportation to move from place to place, clean water for best hygiene of environment as well as gelatin ingredient to produce edible food such as deserts. These are supported according to Mohd Hapiz' research that in most situations the context of consumerism especially in Muslims' life had congested owing to a lack of *ḍarūrah* parameter from shariah perspective (Mahaiyadin & Osman, 2017).

Second: The essential argument in using forbidden materials for *ḍarūrah* and *ḥājah* times are similar which is *mashaqqah*. However, the level of *mashaqqah* will determine either *ḍarūrah* or *ḥājah*. In semi-critical time, only *ḥarām li ghayrihi* is allowed for *ḥājah* condition while critical situation will permit *ḥaram li dhātihi* to the sufferer because most of the time, critical situation will lead to death (Kāfiyy, 2004).

Third: The limitation of using forbidden things in semi-critical is similar with critical time.

To conclude, there are certain times which *ḥājah* can be defined and distinguished as *ḍarūrah*. Their relationship between *ḍarūrah* and *ḥājah* also is expressed in a *qāʿidah fiqhiyyah* called *al-ḥājah tunazzal manzilah ḍarūrah* that will be elaborated in next sub-topic too. As for now, another *fiqhiyy* term related to *ḍarūrah* will be coming through before *ḥājah* division.

d. *Ḍarūrah* and its Relation to *Istiḥsān bi al-ḍarūrah*

Istiḥsān came from word *istaḥsana* as quoted *ʿaddaḥasanan* which means considered as good and its antonym is *qabaḥ* means bad (Al-Fayrūz Ābadiyy, 2005). Definition of *istiḥsān* epistemologically has several meanings, *istiḥsān* opposes *al-qiyās al-jalī* because most of the time its legal proofs deemed as stronger than *al-qiyās al-jalī* (Al-Jurjāniyy, 2004).

﴿وَٱلَّذِينَ ٱجۡتَنَبُواْ ٱلطَّٰغُوتَ أَن يَعۡبُدُوهَا وَأَنَابُوٓاْ إِلَى ٱللَّهِ لَهُمُ ٱلۡبُشۡرَىٰۚ فَبَشِّرۡ عِبَادِ ١٧ ٱلَّذِينَ يَسۡتَمِعُونَ ٱلۡقَوۡلَ فَيَتَّبِعُونَ أَحۡسَنَهُۥٓۚ أُوْلَٰٓئِكَ ٱلَّذِينَ هَدَىٰهُمُ ٱللَّهُۖ وَأُوْلَٰٓئِكَ هُمۡ أُوْلُواْ ٱلۡأَلۡبَٰبِ ١٨﴾

Meaning: "But those who have avoided taghut, lest they worship it, and turned back to Allah - for them are good tidings. So give good tidings to My servants. Who listen to speech and follow the best of it. Those are the ones Allah has guided, and those are people of understanding."

(Al-Quran. Al-Zumar: 17-18)

Al-Shawkāniyy (2000) describes that those whom hesitant with the status of *istiḥsān*, indeed diversely they support that decision to change towards a stronger *qiyās* due to *maṣlaḥah* of people. In a broader homogenous definition, *al-istiḥsān* is defined epistemologically as "choosing another opinion of similar issue with a thought it is strongest legal proof" (Al-Jaṣṣāṣ, 1994).

1. Types of *Istiḥsān*

Scholars categorizes *istiḥsān* into various types in their books. Herein, the categorization of type of *istiḥsān* according to its chain (*sanad*) (Ṭāhir Maḥmūd, 2012) as following:

First: *Istiḥsān bi al-naṣ*: According to the methodology of *qiyās*, transaction (*ʿaqad*) without subject (*silʿah*) will result to invalid status in Islamic *muʿāmalah*. However, *bayʿ al-salam* is permitted due to need of people and prophet SAW revealed that the status of *bayʿ al-salam* is excused.

Second: *Istiḥsān bi al-ijmāʿ*: For example, *bayʿ al-istiṣnāʿ* which is not accompanied by the subject as well but *ijmāʿ* recognized that type of transaction as practiced by people surround.

Three: *Istiḥsān bi al-ʿurf*: The practice of this type of *istiḥsān* does not apply *qiyās* methodology, instead they prefer to apply the law according to *ʿurf* of the places, for instance, the rate of consuming public toilet does not limit the amount of water and time consume either little or plenty due to *ʿurf*. In contrary, based on *qiyās*, people are disallowed to utilize the water without fixed charge rate.

Fourth: *Istiḥsān bi al-ḍarūrah*: For example, cleaning wells which mixed with filth by pumping out the water to certain amount due to filth inside the well (Zaydān, n.d.). According to *qiyās* methodology, the water shall be separated due to the filth. The reason for this is the pail that used for digging the water inside the well had contacted the filth. However, there is another opinion which claimed the rest of the water in the well is not affected at all by the filth. The solution which excuse that mixed water with the filth is *istiḥsān*, in which by applying *istiḥsān bil al-ḍarūrah* instead of *qiyās* methodology in determination the status of the water either pure or impure.

Fifth: *Istiḥsān bi al-maṣlaḥah*: The exception of legal rule which associated with *maṣlaḥah* of other people. For instance, *istiḥsān* takes account *maṣlaḥah* of people which engaged their rights or properties which imposing certain compound upon the renter who does break or destroy owner's belongings. While under *qiyās* justifies the honest renter does not being charged, then *istiḥsān* indeed, ask guarantee due *maṣlaḥah* of people.

2. Islamic Ruling on *Istiḥsān*

Hanafite, Hanabilite and Malikite sects agreed to accept *istiḥsān* as one of methodological tools in determination in Islamic ruling. While most Shafi'ite sect is known are against *istiḥsān* because they believe that *istiḥsān*'s argument is not based on legal proofs from Al-Quran and Hadith. Al-Imām Al-Shāfiʿiyy stated that *al-istiḥsān* is based on luxuries or in Arabic says,"*innama al-istiḥsān talaẓẓuẓ"*(Al-Syāfiʿiyy, 1938). Thus, *istiḥsān* may deemed as justification of Islamic ruling accordance by lust and desire.

Al-Shīrāziyy (476H) delineated that false al-*istiḥsān* (*al-istiḥsān al-bāṭil)* as leaving *qiyās* as human makes it good without supported by any legal basis (Al-Shīrāziyy, 1983). Some Hanafite sect also deems that *istiḥsān* without *dalīl* is dismissed (Al-Shāṭibiyy, 2010) while al-Sarakhshiyy al-Ḥanafiyy observes *istiḥsān* is more mercy to people in solving their problem (Al-Sarakhshiyy, n.d.).

Observing that, it seems to appear that methodology with *istiḥsān* without legal *dalīl* can be deemed as useless, if quranic text or hadith *dalīl* is used as argument in the *istiḥsān* justification, then it not more than a repetition. Hence, the discourse around it never stopped, instead *istiḥsān* is recognized by most of jurists and legal theorists (*jumhūr*) as legal methodology in Islamic ruling (Al-Shawkāniyy, 2000).

However, heated discussion over the status of *istiḥsān*, only around the nomenclature issue because the ruling resulted through *istiḥsān* is still recognized in shariah. ʿAbdul Karīm al-Namlah (1999) describes the meaning of *istiḥsān* as follows;

العدول فى الحكم عن دليل إلى دليل هوأقوى منه، وهذا مما لا ينكره الجمهور فكان الخلاف لفظيا

Meaning: "Diverting in legal rule determination from a legal proof to another legal proof which is stronger than other. This is not being denied by the majority, it only differs on phrasing only"

The above mentioned definition is forwarded by ʿAbdul Karīm Al-Namlah in a discussion of *istiḥsān* whereby explaining a condition of diverting a legal rule based on a stronger justification, instead of weak justification.

3. Relation between *Istiḥsān* with *Ḍarūrah*

The concept of *istiḥsān* is wider than *qiyās*, indeed, it could be *istiḥsān bi al-naṣ* or *istiḥsān bi al-ʿurf* or *istiḥsān bi al-ḍarūrah* (Ibnu Nujaym, 1936). As aforementioned in the type of *istiḥsān*, we can see that *ḍarūrah* is implied clearly with *istiḥsān* concept. *Istiḥsān* is implemented in a situation when the *ijtihād* is not applied through *qiyās*, most likelihood it is able to facilitate a lot of people as well as eliminate the difficulties (Al-Sarakhshiyy, n.d.).

Istiḥsān methodology is implemented whenever jurists figure out that by adopting methodology of *qiyās,* the situation eventually seems appear to push people into hardship and difficulty (Al-Bahūsayn, n.d.). In certain conditions, if applying *al-qiyās al-mutlaq* would further lead to difficulties for people, it is recommended to excuse that condition of hardship (Al-Shāṭibī, 2010). Thus, the topic of *istiḥsān* is inferred as an *ijtihād* which able to bring people to a betterment (Al-Bahūsayn, n.d.).

e. *Ḍarūrah* and its Relation to *Maṣlaḥah Mursalah* or *Istiṣlaḥ*

Al-Ghazāliyy, amongst of the prominent shariah scholars who articulates *maṣlaḥah* as preservation of shariah objective in revealing the divine law through safeguarding the essential human well-being which pronounced as *al-ḍarūriyyāt al-khamsah* for instance, religion, live, intellect, wealth and lineage. Any demolishing actions towards any of these five components of *ḍarūriyyāt* called corruption or evil (*mafsadah*) and actions to build these five are called welfare (*maslahah*) (Al-Ghazaliyy, 2008).

The acceptance of *maṣlaḥah* as source of shariah law differ amongst the schools of Islamic law due to the factor of its potential to stand alone without supported by Al-Quran and Hadith because *maṣlaḥah* able to exist in various times in human life. Over this great discussion among shariah scholars in the past, this *maṣlaḥah* is known as *istiṣlaḥ* or *maṣāliḥ al-mursalah*.

Ḍarūrah and *istiṣlaḥ* have integrated each other because the main purpose for both *fiqh* components aim at achieving maqāsid shariʿah by receiving the benefit and eliminating the harmful.

1. Definition of *Maṣlaḥah*

Maṣlaḥah mursalah literally, which extracted from Arabic root word *ṣalaḥa* means benefit (*manfaʿah*) (Al-Ghazāliyy, 2008). According to jurists' terminology, *maṣlaḥah mursalah* is a feature which eligible to represent the management of Islam to human difficulties which is does not has the legal proof (*dalīl*) neither from Al-Quran nor Hadith. Due to that, the issues is implied to the *maṣlaḥah* of human in obtaining something and eliminating the evil (Al-Zuhayliyy, 1999). While Abū Zahrah (n.d.) justifies *maṣlaḥah* hence, conforms with *maqāsid sharīʿah* too.

Some examples of the companions (May Allāh pleases with them) carried out the concept of *maṣlaḥah mursalah* such as the compilation of Al-Quran in the time of Abū Bakr (May Allah please with him) albeit it is not performed by Prophet (PBUH). The compilation effort based on *maṣlaḥah* reason in order to preserve Al-Quran due to many *ḥuffāẓ* had martyr in the battles.

Next, ʿUmar Al-Khattāb decided to segregate the state governor's personal wealth and the income or money that they conceived from their occupational with the *maṣlaḥah* to avoid from manipulation matter or bribes. ʿUthmān bin Al-ʿAffān made *ijtihād* to write and standardize the writing of Al-Quran as *muṣḥaf* Uthmani to paralyze the *qiraʿah* with the reason to prevent manipulation of Al-Quran *muṣḥaf* from its originality (Al-Zuhayliyy, 1999).

According to ʿAbd al-Salām (n.d.), *maṣlaḥah* can be classified into twofold. Firstly, real *maṣlaḥah* (*maṣlaḥah ḥaqīqiyyah*) called the happiness and secondly, metaphysic *maṣlaḥah* (*maṣlaḥah majaziyyah*) considered as its causes. It is comprehended that not all types of benefits classified as *maṣlaḥah* in the sight of *sharaʿ*, likewise in the context of *mafsadah* because all actions contribute to evil and harm known concisely.

2. Types of *Maṣlaḥah*

Maṣlaḥah generally can be measured according to severity of the issue based on these divisions (Al-Zuhayliyy, 1999):

First: Necessity (*Ḍarūriyyāt*): This is the strongest level in *maṣlaḥah* which does not has the evidences in Al-Quran and Hadith. *Ḍarūriyyāt* meticulously analyzed from maqasid al-shariʿah while *ḍarūrah* is a tool in Islamic jurisprudence which used in determining and examining the level of severity of issues in *ḍarūriyyāt* level. Without

ḍarūriyyāt and *ḍarūrah*, Muslims are not able to determine how far the urgency of the *maṣlahah*. Hence, blocking *maṣlaḥah ḍarūriyyāt* from being achieved, for instance religion or live or intellect or lineage or wealth will end up with destruction (Al-Ṣallābiyy, 2002).

Second: Need (*Ḥājiyyāt*): This situation concerns about the one who need or require for something that he will be deprived without it. Basically, he or she will be dragged into *mashaqqah* and harsh life owing to a lack of that need, notwithstanding this situation will not surplus beyond destruction in human's life (Al-Shāṭibiyy, 2004). For example, human might end up with morbidity instead of mortality if not being treated with effective medicines, skilled doctor and assisted by technology equipment.

Third: Embellishment (*Taḥsiniyyāt*): This is the lowest level in this type of division. *Taḥsiniyyāt* is the part of beautifying of the *maṣlaḥah*. If this *taḥsiniyyāt* level is not performed, the *maqasid al-shariʿah* is not vanished but its present will build the beauty of Islam as well as to complete the components in human life which encompasses religion and mundane matters (ʿAbd al-Salām, 1991).

iii. The Islamic Legal Maxims (*Qawāʿid Fiqhiyyah*) Related to *Ḍarūrah*

The following are several *qawāʿid fiqhiyyah* which shariah scholars have formulated to be used in solving conflicting matters which never occur in the previous:

a. **Hardship shall bring alleviation *(Al-Mashaqqah Tajlibu al-Taysīr)***(Al-Suyūṭiyy, 1983)

Fundamentally, accordance to the principles of facility (*taysīr)* namely tolerance (*tasamuḥ*) and difficulties in refusal (*dafʿu al-ḥarj*), Islam spread the message to remove the hardship and eliminate all the burdens from mankind (Al-Zuhayliyy, 1985).

While, *tajlibu* means coming with something from a situation to another situation (Ibnu Fāris, 1979) and *taysīr* means easy, painless and uncomplicated (Qalʿahjiyy, 1988). According to *Fiqh* terminology, that *qāʿidah* means when the Muslims stumbled upon the complicated and tough circumstances whether towards oneself or society, indeed shariah removes the burdens to be manageable (Abd al-Salam, n.d.).

Essentially this *qāʿidah fiqhiyyah* is inferred from multitudinous surah in Al-Quran such as al-Baqarah: 185, surah al-Ḥaj: 78, al-Baqarah: 286, al-Baqarah: 28, al-Mā´idah:6, al-Aʿrāf: 157 and al-Nūr: 61. Those verses interpreted that Islam is revealed to mankind without leaving upon Muslims all burdens, instead equipped with eliminator of the hardship which able to facilitate them in practicing Islam as a lifestyle.

Al-Sadlān clarified that this *qāʿidah* is one of the main pillars of imposing the *fatwa* in various *fiqh* cases. Most of the *rukhṣah* situations were built up based on this *qāʿidah* and it interprets the legal rules by observing the concept of facility (*taysīr*) and tolerance (*samḥah*). This *qāʿidah fiqhiyyah* emerges as the basic concept in describing that the difficulties related to Islamic legal rule are relevant to accommodate *mukallaf* (1996).

Over all the difficulties, shariah justification emerges to facilitate the problems faced by *mukallaf* such as widening the tight time (*tawsīʿwaqti al-ḍayyiq*), *ḥiwālah*, *waṣiyyah*, *ḥajz*, *salam*, *ibra´*, *sharikah*, *suluḥ*, *wakālah*, *wadīʿah* and *muḍārabah*. All of those are relying on this *qāʿidah fiqhiyyah* or named as *rukhṣah* (ʿAliyy Ḥaydar, 2004). Al-Shāṭibiyy (790H) affirmed that the denial concept against any difficulties and burdens in Islam achieves the level of *qaṭʿī* (Al-Shāṭibiyy, 2010).

However, not all types of difficulties deserved to be facilitated with *rukhṣah* or *ḍarūrah*. The difficulty that accepted to be given facility according to *sharīʿah* is the

one that beyond *mukallaf*'s capabilities (*al-mashaqqah ghayrumuʿtaddah*) (Al-Zarqāʾ, 1989, Al-Burnū, 1996, Al-Zuhaylīyy, 1999). In this regard, we understand that the responsibility (*taklīf*) sent down to Muslim consist of heavy obligation from The Al-Mighty Allāh. In order to comprehend the concept of *taklīf,* Al-Shāṭibiyy characterized *taklīf* literally as a heavy and difficult demand of task or responsibility (Al-Shāṭibiyy, 2010, Ibnu Nujaym, 1999).

Mashaqqah occurs caused by disability of *mukallaf* in performing obligations. However, all the *mashaqqah* will not deemed as *ḍarūrah* automatically because need to screen the degree of severity of the *mashaqqah*. *Ḍarūrah* occurs when the *mashaqqah* threats the *ḍarūriyyāt al-khamsah* of the *mukallaf*.

However, in the application of the *qāʿdah fiqhiyyah* namely *al-mashaqqah tajlibu al-taysīr*, jurists apply it in all situations accompanied by normal *mashaqqah* such as permissibility to perform *tayammum, jamāʿ qaṣr* during travel and excused from fasting if having medical illness (Hapiz, 2016). The concept of the application of this *qāʿidah fiqhiyyah* is similar to *rukhṣah* concept, instead of threating any *ḍarūriyyāt al-khamsah*.

Hence, the implementation of this *qāʿidah fiqhiyyah* is more significant in dealing with *maṣlaḥah* of human lives such as a patient whom prescribed unlawful medicines for the sake of saving his live becomes top priority in that situation.

b. When a matter is narrowed, it becomes wide (*Idhāḍāqa al-amru, ittasaʿa, waidhā ittasaʿaḍāqa*) (Al-Suyūṭiyy, 1983)

Resting on this foundation, the flexibility of *sharīʿah* legal rule which is usually provides a way out for *mukallaf* if stumbles on difficulties in carrying the obligatory

out. For example, a Muslim woman allowed to expose their *awrah* if the medical treatment urge them to do so vigilantly within limitation. In a similar vein, male doctors allowed to see women's *awrah* if necessarily needed in treatment.

c. Eliminates the harm (*Al-ḌararYuzāl*) (Al- Suyūṭiyy, 1983)

Al-Ḍarar yuzāl is a branch of *qāʿidah kulliyah* namely *al-mashaqqahtajlibu al-taysīr* (Al-Zarqā', 1989). This *qāʿidah* deemed as an essential to many Islamic rulings either in *muamalat*, *criminal*, family and marriage. Al-Suyūṭiyy said, "should be informed that this *qāʿidah* be built up many topics of *fiqh* on it..." (Al-Suyūṭiyy, 1983).

Ḍarar is defined literally as flaw, destitute or devoid condition (*suʿ al-ḥāl*), drought, starving, lack of something, hunger (*qaḥt*), hardship, difficulty, distress (*shiddah*) (Al-Fayrūz Ābadiyy, 2005). *Al-Ḍarar yuzāl* defined as the harm that need to refrain from occurring. If the harm occurs, then it must be repelled mandatorily (Al-Jīzāniyy, 2007). The *qāʿidah* consists of two main fundamental elements in it, namely first, prevent the harm occurs in the first place. Second, the compulsory of removing away the harm if it occurs.

In this research, conceptually *ḍarūrah* in medical cases may allow patients to use forbidden substitute medicinal treatment to prevent the risk and to remove the disease suppported with medical advice from professional Muslim doctors. By omitting the Islamic ruling of incumbent to take the unlawful medicine as it is the most effective medicine for that time and situation according the opinion of specialist (*raʾyu al-khābir*) to save his live, that *mukallaf* hence goes against Allah command to not throw himself into destruction state.

d. Nessecity Beget Prohibition (*Al-Ḍarūrah Tubīḥ Al-Maḥẓūrah*) (Ibnu Nujaym, 1999)

This is amongst the most important *qāʿidah* in Islam in *ḍarūrah* concept owing to its status to permit most of the emergency cases in medical particularly to use the unlawful medicinal substitute to prevent harm before it happens or wipe out immediately if it occurs. This *qāʿidah* allows using the forbidden things to save *al-ḍarūrah al-khamsah* by eating or drinking or injecting or leaving the *wājib* obligatory.

e. *Need is ranked as necessity (Al-Ḥājah Tunazzal Manzilah al-Ḍarūrah)* (Al-Suyūṭiyy, 1983)

Ḍarūrah is the ultimate space given to the ´*ummah* to remove their hardship out toward betterment of life. The application of *ḍarūrah* is a concept which not resistance toward the concept of tolerance (*al-tasāmuḥ*) within limitations. The researcher also prefers to say that *al-ḥājah tunazzal manzilah al-ḍarūrah* is totally identical to the beginning or at least at bottom line of *ḍarūrah* (Mubārak, 2003).

Patients who require medical treatment either high-risk or moderate risk shall be given if they require based on assessment of medical experts. That tenacious need presses patients who are at risk during pregnancy and puerperium to be recruited with LMWH equivalent to be minimum of *ḍarūrah* but that level of *ḥājah* is not resulted from normal *mashaqqah* anymore, instead can be stratified as *mashaqqah ghayr muʿtadah* as described before this in the topic of *mashaqqah*.

f. Necessity measured in its own limitation (*Al-Ḍarūrah Tuqaddar bi Qadarihā*) (Al-Suyūṭiyy, 1983)

This *qāʿidah fiqhiyyah* indicates that *ḍarūrah* principle is implemented with its limitation. In this research, patients must be given according to their levels. In fact, in medical area, extra or underuse dose regimen will further lead to another harmful situation. For instance, LMWH for prevention is once daily while therapeutic treatment may need twice daily of subcutaneous injection for those who are at risk during pregnancy and puerperium. The limitation of *ḍarūrah* principle described in Al-Quran surah Al-Baqarah: 173, Al-Anʿām: 6 and Al-Naḥl: 115.

g. Something become legal by a valid excuse, it becomes illegal when the excuse ends *(Ma jaza liʿuzrin baṭala bi zawālihi)* (Al-Suyūṭiyy, 1983)

This *qāʿidah fiqhiyyah* means the *rukhṣah* is given whenever the *mashaqqah* exists and the *rukhṣah* stops whenever the *mashaqqah* absent. This *qāʿidah* consolidates with *al-ḍarūrat tubīḥ al-maḥẓūrāt* and give hint that the *rukhṣah* cannot be applied anymore if the cause or *mashaqqah* disappears.

h. People's rights are not devoured because of necessity (*Al-Iḍṭirār lā Yubṭilu ḥaq al-Ghayr*) (Ibnu Nujaym, 1999)

Although Islam allows to use other's right in *ḍarūrah* situation however, the compelled *mukallaf* that use other belongings must make a guarantee back to the owners. This is because in Islam, belongings of somebody is allocated in high place.

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i. Blocking Evils is prioritized than seeking benefits (*Darʹu al-Mafāsid Awlā min Jalbi al-Maṣāliḥ*) (Ibnu Nujaym, 1999)

This *qāʿidah fiqhiyyah* shows the importance of weighing the *mafsadah* and *maṣlaḥah* in all situations decided especially in determination of halal and haram of products. Islam emphasizes to eliminate the *mafsadah* resulted rather than receiving *maṣlaḥah*. From this *qāʿidah*, wine business is prohibited even though it is profitable return. Not to mention if the *mafsadah* occurs is even worse than earn out tied to profitability of wine sales.

Relating to this research, this *qāʿidah* appears as the paramount important proof because the risk factors of VTE diagnosed during pregnancy and puerperium can be considered as that mother's conditions are surrounded with harm risk due to most likelihood to death is high. Thus, the *maṣlaḥah* of Allāh's command to not consume porcine as stated in Al-Quran is exempted under *ḍarūrah* situation specifically *darʹu al-maṣlaḥah awla min jalbi al-maṣlaḥah.*

j. When two evils conflicts, choose the lesser one (*Idhā Taʿāraḍa mafsadatānī, rūʿiya aʿẓamuhumā ḍararan bi irtikābi akhafihimā*) (Ibnu Nujaym, 1999)

This *qāʿidah fiqhiyyah* exemplifies over a compelled *mukallaf* (*muḍṭar*) to choose the lowest *mafsadah* if he or she be in conflicting of two *mafsadah*. The best example for this is, if the *mukallaf* does not choose to eat or consume the prohibited sources for life surviving, then eating the medicine which manufactured from porcine derivatives is better rather than threating his or her lives until death.

This is because the preservation of lives is among of the objectives of shariah. Therefore, in that situation, *mukallaf* is given *rukhṣah* to take the lower *mafsadah* than scarifying the life. This *qāʿidah* is also associated with other *qāʿidah* with different phrases such as *yukhtār ahwanu al-sharrayn* and *akhaffu al-ḍararayn*.

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4.10.3 The Principle of *Al-Ḥājah Al-Sharʿiyyah* for Thromboprophylaxis of VTE during Pregnancy and Puerperium

Extensive literatures, protocols and clinical guideline at national level such as CPG or VTE Training Manual 2018 by MOH or at the international level such as Green-top Guideline No. 37b by UK Royal College of Obstetricians and Gynecologists had stated that mothers who are at moderate risk of VTE, are strongly recommended to be prescribed with LMWH at 28/52 week of pregnancy. Thus, there is no question of contemplating the *fiqh* aligned solution upon those mothers under the principal *of Al-Ḥājah Al-Sharʿiyyah*.

The principle of *al-ḥājah tunazzal manzilah al-ḍarūrah* is under *ḍarūrah* principle while it is also considered as a major concern for those in semi-critical situation (Hapiz, 2016), upon the researcher's view it is extremely crucial to be clear about *al-ḥājah al-ṣharʿiyyah* first. To organize the discussion topic in a constructive manner, the researcher intends to articulate the question of *ḥājah* principle upon moderate risk mothers by trying to identify the meaning of *ḥājah* first and legal ruling related to it before committing herself to the justifications of moderate risk mothers towards *al-ḥājah tunazzal manzilah al-ḍarūrah*.

As a *fiqh* term, *ḥājah* is known as an integrated concept closely to the concept of *ḍarūrah* in measuring a condition of deducing legal rule in Islam. To this effect, readers will be exposed how *ḥājah* concept able to be as crucial as *ḍarūrah* situation. as a matter effect, the implication of *ḥājah* in its weightage to deduce Islamic legal rule for thromboprophylaxis with LMWH (Enoxaparin) during pregnancy and puerperium.

4.10.3.1Definition of *Al-Ḥājah al-Sharʿiyyah*

In general, the boundaries between *al-ḥājah al-ṣharʿiyyah* found in *ḍarūrah* and *ḥājah* conditions needed to be distinguished clearly. *Hājah* principle clearly recognized that it has no affect upon *ḍarūrah* level, rather it acts as the compliment (*mukammilah*) of *ḍarūrah* criteria (Al-ʿAṭṭār, n.d.), while the absence of *ḥājah* consideration could only produce difficulties and hardship over human daily task. Before the researcher presents the boundaries of *ḥājah* and *ḍarūrah*, it will be useful to point out some of the definitions to crystalize the framework about *al-ḥājah al-ṣharʿiyyah*.

Conventionally, *ḥājah* has various meaning but remains relevant to a central definition as stipulated by the technical sense. However, it is more proper to discuss with literal meaning of *ḥājah* in the beginning followed by technical, contemporary scholars and from medicine perspective.

i. Definition of *Ḥājah* Literally

Extensively, the term of *ḥājah* will be defined from here till the divergent definitions in technical lens. Literally, *ḥājah* derivate fromthe word of *ḥa-wa-ja* (حوج) which defined as *al-iḍtirār ila al-shay'* (Ibnu Fāris, 1979). Al-Fayrūz Ābadiyy stated that the word *al-ḥājah* denoted to *al-ḍarūrah*. Ibnu Manẓūr (1883) elaborated *ḥājah* as tenacious need (*al-maʾarabah*) or need for something (*al-rughbah*). The word of *al-maʾarabah* can be figured out in three places in Al-Quran as follows;

First:

وَلَمَّا دَخَلُواْ مِنۡ حَيۡثُ أَمَرَهُمۡ أَبُوهُم مَّا كَانَ يُغۡنِي عَنۡهُم مِّنَ ٱللَّهِ مِن شَيۡءٍ إِلَّا حَاجَةً فِي نَفۡسِ يَعۡقُوبَ قَضَىٰهَاۚ وَإِنَّهُۥ لَذُو عِلۡمٖ لِّمَا عَلَّمۡنَٰهُ وَلَٰكِنَّ أَكۡثَرَ ٱلنَّاسِ لَا يَعۡلَمُونَ ٦٨

Meaning: "And when they entered from where their father had ordered them, it did not avail them against Allah at all except [it was] a need within the soul of Jacob, which he satisfied. And indeed, he was a possessor of knowledge because of what We had taught him, but most of the people do not know"

(Al-Quran. Surah Yūsuf 12: 68)

The term of *ḥājah* in the verse is regarded as *rughbah* or *irādah* of Prophet Yaacob (Peace on him) over his children to enter from various entrances owing to avoid the bad eyes (*al-ʿain*), instead of through merely a door. This *rughbah* or *irādah* intentionally to avoid other's envies or resentments on them because of they do possess the dignity and honor (Al-Suyūṭiyy, n.d.). The *rughbah* or that 'need feeling' is kind of knowledge within Prophet's Yaʿcob ability bestowed by Allāh in him.

Second:

وَلَكُمۡ فِيهَا مَنَٰفِعُ وَلِتَبۡلُغُواْ عَلَيۡهَا حَاجَةٗ فِي صُدُورِكُمۡ وَعَلَيۡهَا وَعَلَى ٱلۡفُلۡكِ تُحۡمَلُونَ ٨٠

Meaning: "And for you therein are [other] benefits and that you may realize upon them a need which is in your chests; and upon them and upon ships you are carried."

(Al-Quran. Surah Ghāfir 40: 80)

This piece of holy verse clearly stated the term of *ḥājah* had been interpreted by literal sense as needs or loads in human's mind or feeling in heart to travel from country to another country with using their vehicles to complete their works (Al-ʹAmadiyy, n.d.).

Third:

وَٱلَّذِينَ تَبَوَّءُو ٱلدَّارَ وَٱلۡإِيمَٰنَ مِن قَبۡلِهِمۡ يُحِبُّونَ مَنۡ هَاجَرَ إِلَيۡهِمۡ وَلَا يَجِدُونَ فِي صُدُورِهِمۡ حَاجَةٗ مِّمَّآ أُوتُواْ وَيُؤۡثِرُونَ عَلَىٰٓ أَنفُسِهِمۡ وَلَوۡ كَانَ بِهِمۡ خَصَاصَةٞۚ وَمَن يُوقَ شُحَّ نَفۡسِهِۦ فَأُوْلَٰٓئِكَ هُمُ ٱلۡمُفۡلِحُونَ ٩

Meaning: "And [also for] those who were settled in al-Madinah and [adopted] the faith before them. They love those who emigrated to them and find not any want in their chests of what the emigrants were given but give (them) preference over themselves, even though they are in privation. And whoever is protected from the stinginess of his soul - it is those who will be the successful."

(Al-Quran. Surah Al-Ḥasyr 59: 9)

Depending on meaning conveyed in Al-Quran, *ḥājah* in the verse denoted to the early history of Islam in the time of moving (*hijrah*) of *Muhajirūn* people from Mecca to Medina, The Al-Mighty Allāh declared the sincerity of *Anṣār* people' hearts whom do not feel bad desire or need to the things that they had given over *Muhajirūn* people. On the other hand, they enjoy to share the belongings, instead of envies to *Muhajirūn* (Al-Sa'diyy, 2002).

The following three situations presented, indeed, have designated into the researcher' conclusion that *ḥājah* connotation by literal sense, is an act of internal element in human' heart or mind implied as a feeling or intention that one wish to complete the life smoothly without leading to hardship. However, how *ḥājah* is expressed literally remains distinguishable upon the objective of this research held. On this occasion, the researcher shall present *ḥājah* terminology from technical senses which consist of *fiqh* and *uṣūl fiqh* views in concerning for legal ruling deduce.

ii. Definition of *Ḥājah* Technically

There are wide variation in defining of *ḥājah* by technical sense (Al-Rashīd, 2008) either in general or particular scope or describing the term with a proper connotation of legal theory epistemology or by merely by giving example for instance in *fiqh* cases. In the field of *uṣūl al-fiqh*, some legal theorists regarded the term of *ḥājah* defined as '*maṣlaḥah*' based on two scholarly arguments (Al-Rashīd, 2008) as following:

First: The term of *ḥājah* defined as al-*maṣlaḥīyy* (Al-Subkiyy, n.d.) by giving example of assigning authorized person (*al-walīyy*) upon a small daughter for marriage purpose (Al-Bayḍāwiyy, 2008) as this example has been maintained as *al-ḥāji* and not paving

the condition neither to *al-ḍarūriyy* nor *al-taḥsīnīyy* accordance to division of public interest (*al-maṣlaḥah*).

To better understand of *al-maṣlaḥah*, leading jurists such as Al-Ghazāliyy (2008), Ibnu Qudāmah (1998), Ibnu Juzay (2002) list the division of *al-maṣlaḥah* is essentially divided into three categories such as accredited public interest (*maṣlaḥah al-muʿtabarah*), discredited public interest (*maṣlaḥah al-mulghah*) and unattested public interest (*maṣlaḥah al-mursalah*). In turn, Al-Shāṭibiyy (2004) has outlined *al-ḥājiyyāt* as a base to numerous and novel cases whose lack concrete indication in the Al-Quran and hadith or on account of *ijmāʿ* on the *maṣlaḥah al-mursalah* division.

Second: The second tenet which had become a premise for the discussion of *ḥājah* amongst early prominent jurists is *qiyās*. Technically, a piece of description in *qiyās* pertaining to *ḥājah* or specifically *hājiyyāt* can be found out in ways in determining the reason (*masālik al-ʿillah*) whereby its subdivision specifically named as relevant way (*maslak al-munāsabah*) (Al-Shanqīṭiyy, 1962).

Early legal theorist, Al-Juwayniyy (1979) endured on his standpoint which definitely identical to his teacher, Abū Ishāq who supported *maslak al-munāsabah* is relevant to be applied in the process of *qiyās* owing to this religion and is not merely presented as *taʿbudiyyah*, nonetheless based on *al-maʿqūl* (Al-Āmidiyy, 2003). As far as *ḥājah* is our concern here, under *maslak al-munāsabah* classification system, *ḥājiyyat* is discussed in the section of classification namely *ḥaqīqiyy duniyawiyy* (Al-Shanqīṭiyy, 1962).

iii. Definition of *Ḥājah* from *Fiqh*

While legal theorists contributed to the establishment of *ḥājah* definition in *hājiyyāt* scope, the definition constructed by jurists, had indeed played a significant and vital quantifying tool to deduce legal rule over Muslim issues in Muslims' life. In this regard, there is little to distinguish both definitions as presented as follows;

1. Al-Imām Al-Juwayniyy clarifies that *ḥājah* genuinely treated to be defined as "warding off the harm and people consistently stand on what evaluates their capabilities" (Al-Juwayniyy, n.d.). In addition to that, Al-Imām Al-Juwayniyy linked that clarification as a need for something without expanding the need beyond *ḍarūrah* level (Al-Juwayniyy, 1979). The researcher strives to investigate in this work by Al-Juwayniyys' influential study on *ḥājah*, his clarification remains undefined sharply, although gave almost perfect picture of *ḥājah* situation.
2. Al-Samʿāniyy (1998) applied a piece of criterion for interpretation of *ḥājah* such as *al-ḥājah al-ʿāmah* (general need) will never supersede beyond *ḍarūrah* border by citing its example such as trading or business (*ijārah*) which is needed generally by residents at any places.
3. Al-Ghazāliyy (1971) among of the early jurists mentioned in his book entitled *Shifāʾ al-Ghalīl* that *al-ḥājah al-ʿāmah* affairs that had been sought by the entire people can be considered as an identical matter and is similarly ranked as the issue of *al-ḍarūrah al-khāṣah* whereby a person deprived for.
4. Ibnu Al-ʿArabiyy (1992) illustrated a similar concept between *al-ḥājah* and *al-ḍarūrah* when both are able to permit the prohibition for the sake of human consumption need. However, an odd standpoint around *muʿamalah* held by Al-Imam Malik alone had been exemplified for *ḥājah* case whereby notable

exception to the issue of gold loan (*qarḍ*) adhering to a certain period, although this issue has been invalidated by other jurists.

5. ʿIzz al-Din ʿAbd Al-Salām' (1991) undertaken the definition of *ḥājah* which can be comprehended through several examples proposed in scatter sense of a particular topic namely *min al-mustathniyātmin al-qawāʿid al-sharʿiyyah*. Precisely, *ḥājah* does concerns itself with less immediate subjects with eating severe *najasah* such as *maytah*, *khamr* and *khinzīr*. Nonetheless, the researcher has remarked that ʿAbd Al-Salām in another occasion, conceded that the examples given aimed to merely eliminate burdens from human life as well as to facilitate the complicated incidents in daily activities. This is certainly true meaning of *ḥājah* in the instances given such as a master to see his servants, male doctors to see female patients in medical treatment purpose, excused to use jars made out of gold if other options than gold material are on absent event but the permissible rendered still applied within limitation.

To conclude, one of the more significant evaluation to emerge in researcher' mind is, following the era of the very few jurists to whom treated the definition of *ḥājah* and *ḍarūrah* as aforementioned, the contributions merited by their lengthy works indeed, paved contemporary jurists and shariah scholars' approaches to denote *ḥājah* in definite and sharp doctrine, notwithstanding their definition are comprehended in various aspects either by examples or by criterions of *ḥājah*.

iv. Definitons of *Ḥājah* according to Contemporary Shariah Scholars

There is little to distinguish between performance of the early prominent jurists and contemporary shariah scholars pertaining to the definitions of *ḥājah*. On this regard,

the researcher thought that definition on *ḥājah* which constructed by few contemporary shariah scholars can be defined and distinguished at optimal understanding. The emergence of deeper work of later scholars on *al-ḥājahal-sharʿiyyah,* become clearer nowadays with their studies had been supported with earlier jurists' doctrine and practiced according to the recent evidences.

1. Aḥmad Zarqā´(1989) "*Al-ḥājah* is a condition which requires facility and expansion in order to achieve the objective, without the need to bother the level of *ḍarūrah*. It should be noted however that the Islamic rulings derived from *ḥājah* are all exercised on continuous basis while the ruling of permitting the prohibitions by the virtue of *ḍarūrah* is only temporarily valid."
2. Wahbah Al-Zuhayliyy (1985) defined "*ḥājah* as one will be struggling in hardships and if consuming the prohibitions is tolerated it will not throw him into destruction state. The example given, that it is allowable to break the fast in Ramadan and starving people who suffer out of poverty have been proposed in *ḥājah*. They will not die out of refraining by which that prohibition instead, it will cause difficulties and unbearable weaknesses."
3. Muḥammad bin Ḥusayn Al-Jīzāniyy (2007) has elaborated that the "*mashaqqah* criterion which has been upheld by *ḥājah* is distinguishable as normal difficulties and adversities will not lead to destructions and devastations."
4. Nāṣir Al-Maymān (2005) had clarified that *ḥājah* can be illustrated as "a condition of difficult and drawback and can be occurred when the need of people is not furnished, without invading *maṣlaḥah ḍarūriyyah* border."
5. Aḥmad ʿAbd al-Raḥmān Nāṣir Al-Rashīd has proposed in his PhD dissertation that, *ḥājah* connotation which is preferable to emerge is "a need for something owing to a significant precondition in widening the tight situation." (2008).

To conclude, it is pivotal to distinguish here that *ḥājah* from *fiqh* view is measurement tool in order to quantify a Muslims' condition before deriving legal rulings. Nonetheless, legal theorists are distinguished in defining the term of *ḥājah* because *ḥājah* in *uṣūl fiqh* approach is prone to the virtue of *maqāṣid al-sharīʿah* perspective which bears the attribute of objectives in *sharīʿah*.

v. The Philosophy of *Ḥājah* in Medical Perspective

In the history of food industries expansion, they are fundamentally assumed as a primary need to be furnished for life survival. However, when the development of pharmaceutical need for betterment of human quality of life arose, the researcher has been thought that medicines issues has received considerable critical attention which require for not only *ḥalālan ṭayyiban* medicines, but the efficacy of medicines should be taken into account too.

On this occasion, this is supported by Al-Imām Al-Bukhāriyy's study who well aware about three important components implied to medication area, they are firstly, promotion of health, secondly, prevention in health, thirdly, restoration of health (Deuraseh, 2006). Accordingly, a philosophy that has emerged in researcher's mind is concerned with the context of *ḥājah* in medical perspective significantly differ from other fields.

In the treatment of this *ḥājah* philosophy in medical perspective, it is useful to remind here that conflict around the issue of seeking medication with prohibitions disclosed in four prominent *fiqh* sects. The contradict standpoints pertaining to that issue indeed, matter upon jurists either opponents or proponents' side especially in porcine derivatives medicines owing to its severity status of *najāsah* in Islam as presented by the researcher on the pages 120.

Based on jurists' discussion regarding seeking medical treatment with unlawful substances either derivatives or solely any porcine body components, majority of jurists such as Shafi'ite sect had approved such medicines in *ḍarūrah* condition as presented on the page 113. Nonetheless, recently the polemic around the issue of seeking medication with unclean medicines arose for instance, vaccines for children for the purpose of disease prevention which most likelihood using forbidden materials like porcine, pus from scabies, cells from aborted fetus, cancer cells out of chick embryo and bacteria from monkey (Rosman et al., 2020). Likewise, this is similarly acquired in this second research question pertaining to shariah principle that suitable to be applied upon pregnant and puerperium mothers whom are treated as moderate risk to be prescribed LMWH.

In this regard, remark should be clearly stated that upon those aforementioned situations which the patients just only screened as at-risk group, not even diagnosed insofar or in other word, for prophylaxis purpose, some researchers such as RohaniDesa (n.d.), Ebrahim, 2014, Subri (2016), Fauzi et al, (2018), Irwan et al (2019) had inclined to make a preference of rendering the preventive medicines from *fiqh* status as tenacious need or can confined as *al-ḥājah al-māsah* which will be explained further sooner in this division.

Moreover, some contemporary jurisprudence scholars had discussed especially on the status of permissibility of vaccine issue, for example owing to conforming the principles of maqasid shariah perspective (Muhammad Nazir et al,. 2020, Tengku Fatimah Azzaha et al, 2016, Ebrahim, 2014).

Accordingly, the researcher has proposed some *qawāʿid fiqhiyyah* which related to *al-ḥājah al-māsah* which assumed capable to affect in *ijtihād* and *fatwā* discipline later in this division. Amongst of them which explicitly related even, included in

ḍarūrah scope is *al-ḥājah tunazzal manzilah al-ḍarūrah*. This is indeed, emerged in the researcher's mind that the philosophy of *al-ḥājah* in medical perspective meant to the *qāʿdah fiqhiyyah* namely *al-ḥājah tunazzal manzilah al-ḍarūrah*, provided the condition of patients have been supported by physicians that the diseases are at risk of life-threatening. A suitable example that can be cited here is, in the case of women with moderate risk of VTE as well as women at postpartum with VTE score 2. According to CPG, they have been prioritized to be prescribed the most effective and safety medicine by evidence such as LMWH, not to mention women at high-risk of VTE whom can be classified as *ḍarūrah* condition.

The philosophy of *al-ḥājah* in medical perspective also involves the phase of prevention treatment (Deuraseh, 2006), in fact, the idea mentioned under the name of precautionary measurement (Al-Jauziyyah, 2003) from Islamic lens provided the patients have been recommended by the expert or authority such as MOH as health professional body in Malaysia may validly apply *qāʿidah fiqhiyyah* namely*al-ḥājah tunazzal manzilah al-ḍarūrah*, though.

Furthermore, the *ḥājah* of acquiring medical treatment with using *al-najāsah* even though merely involve life-threatening diseases, instead of malignancy diseases, is also recognized in shariah. This was based on previous experiences of companions (may Allah please with them) which had been found in few hadith presented by the researcher before, for example, ʿAbdul Raḥmān ʿAwf and Zubayr bin ʿAwwām allowed to use silk garment to treat itchy skin, ʿ bin Asʿad who suggested by Allāh's Messenger (PBUH) to replace gold artificial nose, instead of silver artificial nose in order to avoid stinky odor in treating his injured nose in the battle and the permissibility upon ʿUraniyyun people to cure this illness out of climate change in Medina by drinking camel's urine and milk.

Additionally, the discussion of jurists particularly Shafi'ite sect also strengthen the status of seeking medical treatment in *ḥājah* time (Ḥammād, 2004). The researcher appears to state the standpoint proposed by Al-Zarkashiyy that any medication given upon the patients in virtue of treating the diseases, is allowable even though there is no proof to assure the unlawful medicinal substances can be alternative to the lawful one (Al-Zarkashiyy, 1985).

Thus, based on this opinion, it can be affirmed that seeking medical treatment at *ḥājah* time is permitted in shariah as health *maṣlaḥah* is more preferred than medication with *al-najasah* (ʿAbdul Salām, 1991). However, in term of the implementation of *ḥājah* philosophy in medical perspective in Malaysian hospitals and in order to make it in line with MCMKI stance, the researcher views medical treatment with unlawful substance is allowed during *al-ḥājahtunazzal manzilah al-ḍarūrah* condition.

To conclude, there are precious examples reported in the Muslim history regarding their experiences in seeking medical treatment during *ḥājah* time which can guide and solve novel cases nowadays especially in healing diseases. Hence, the researcher observes that *ḥājah* which related to at-risk situation plays a pivotal role and has substantial impact in *ijtihād* and *fatwā* due to justify the prohibition in necessity time as mentioned by Ibnu Al-ʿArabiyy (1992) in a phrase of *qāʿidah fiqhiyyah* as *iʿtibār al-ḥājah fī tajwīz al-mamnuʿka iʿtibār al-ḍarūrah fī taḥlīl al-muḥarram* which means to consider 'the need' in allowing the prohibition as necessity in allowing prohibitions.

4.10.3.2The Categorization of *Ḥājah*

It is comprehensively discussed by jurists whereby can be traced in numerous *uṣūl al-fiqh* books that *ḥājah* has embedded into two parts which consist of first, general need (*al-ḥājah al-ʿāmmah*). Second, specific need (*al-ḥājah al-khaṣṣah*) (Al-Juwayniyy, 1979, Al-Juwayniyy, n.d., Al-Zarkashiyy, 1985, ʿAliyy Ḥaydar, 2004). This categorization of *ḥājah* obviously explains about its usage and classification are of prime importance in the topic of *ḥājah* owing to a deriving of legal rule process upon related issues will be affected either.

i) First: *Al-Ḥājah Al-ʿĀmmah*

Al-Ḥājah Al-ʿĀmmah indeed, expresses a situation when the whole people in a place need for something without limitation to certain group of people only (Al-Juwayniyy 1979, Al-Ghazāliyy, 1971). Outcome measures for this need is included widely by peoples' public interest in all aspects, in order to facilitate human affairs such as infrastructures or industrial or agriculture or medical or political or governance considering that kind of *al-ḥājah al-ʿāmmah* will affect human lifes' perfection in a macro perspective.

Though the understanding of *al-ḥājah al-ʿāmmah* does not require every single person must engage in that context of need. Indeed, the need for something spread all around people lives without limited only to certain group of people. At this extent, the status of Islamic ruling on intoxicants elements are permissible or *mubāḥ*. Broadly speaking, if the context is around the discussion of *maṣāliḥ al-mursalah* or on the other hand, the issues have no solid basis either from Al-Quran or hadith, thus that matters shall be considered as the obligatory or responsibility of government. A good example

includes, such as building the electrical station, public transportation, traffic light, water generator and anything related to people amenities in the countries (Al-Rashīd, 2008).

This is a prevalent area of importance and interesting to note that, this *al-ḥājah al-ʿāmmah* categorization is commonly applied widely in the Islamic finance or *muʿāmalah* context. Al-Rashīd had put forward for this some examples of *al-ḥājah al-ʿāmmah* which necessarily needed in the virtue of consistency such as *bayʿ al-salam*, *bayʿ al-istiṣnāʿ* and *bayʿ al-ijārah*.

a) The Guideline (*Ḍawābit*) for *Al-Ḥājah Al-ʿĀmmah*

First: *Al-Ḥājah al-ʿāmmah* does not require upon all persons to need for something. The *ḥājah* emerges is enough if the majority of people need it in order to expand the affairs conveniently.

Second: There are no prerequisite of ensuring that everybody really need it. It is opposed to *al-ḥājah al-khaṣṣah* concept which acquires everyone, or a group of people to be involved. A *qāʿidah fiqhiyyah* stated *kullu mā ubīhat li al-ḥājah al-ʿāmmah, lam yuʿtabar fīhi ḥaqīqatu al-ḥājah*" which means "it does not need to cover the everybody but the need of mass of people as a whole" (Ibnu Qudāmah, 1997).

Third: The demand of *al-ḥājah al-ʿāmmah* in community either the legal ruling is executed or not. Hence, this situation has proved that the need for certain things bear the attribute of necessary element which applied permanently and constantly by majority of people such as *bayʿ salam* and *bayʿ ijārah*.

ii) Second: *Al-Ḥājah Al-Khāṣṣah*

As its name suggested, *al-khāṣṣah* means "specific" literally, it is noteworthy to be defined and distinguished that *al-ḥājah al-khāṣṣah* explained about the need which necessarily demanded by a certain group of people or places or some individuals only (Ibnu Hamīd, 1983, Al-Zuhayliyy, 1985). The terminology of *al-ḥājah al-khāṣṣah* belongs to those who needed something without generalizing to everybody for example, only some residents or citizens need for something. Thus, the rule is devoted only for those people.

Note that some examples have been assumed in this type of *al-ḥājah* to clarify explicitly who is the people which included in the context of *al-ḥājah al-khāṣṣah* such as the permissible for medical doctor to check and examine at the part of woman's *awrah* for treatment purpose, provided there is no Muslimah doctors able to handle that patients condition. Other example in *al-ḥājah al-khāṣṣah* is man is allowed to see his fiancée which in the first place, the Islamic ruling prohibits for a man to see woman if the condition could reflect slander (*fitnah*), instead, in this situation, that man is allowed to do so in order to know the criteria possessed by his fiancée with the purpose to encourage the intention of marriage.

Other than that, a very clear situation happened to companions (May Allah please with them) when Prophet Muḥammad (PBUH) allowed to wear clothes which is made out of silk to avoid itchy skin (Al-Bahūtiyy, 1983) and permitted to make up artificial nose made out of gold to avoid stinky smell when he used the silver material (Al-Nawawiyy, 1980). Same situation goes when the plate is break and the last choice available is plate made out of gold, thus it is allowed in that situation (Al-Mardawiyy, 1955). These examples extracted from hadith are stated in the topic of *al-ḥājah* as

Islamic ruling determination as discussed in the philosophy of *ḥājah* in medical perspective beforehand.

Over the arguments forwarded for the case of *al-ḥājah al-ʿāmmah* and *al-ḥājah al-khaṣṣah*, there is an obvious characteristic to describe about both of the types of *ḥājah*, it is *al-ḥājah al-ʿāmmah* in most of the situation goes against *qiyās* and *qawāʿid al-ʿāmmah* while *al-ḥājah al-khaṣṣah* has opposes certain quranic or hadith text itself (Al-Rashīd, 2008).

a) The Guideline (Ḍawābiṭ) of Al-Ḥājah Al-Khaṣṣah

To avoid any confusion regarding *al-ḥājah al-ʿāmmah* characteristics, the researcher thought it will be useful to clarify *ḍawābiṭ al-ḥājah al-khaṣṣah* to conform with the situation of *al-ḥājah al-khaṣṣah* such as:

First: The need for *ḥājah* case has occurred with doubtless (*shak*) or fancy (*wahm*) situation because *al-ḥājah al-khaṣṣah* originally allowed over the opposition of Quranic and hadith text, hence, *shak* or *wahm* situation is not strong enough to implement that rule of *al-ḥājah al-khaṣṣah*. In this context, *al-ḥājah al-khaṣṣah* has similar concept to *rukhṣah* when it is permitted to apply even though opposes toward *dalīl*. Furthermore, there is *qāʿidah fiqhiyyah which* said "concession is not deduced with doubt" (*al-rukhas lā tanāṭ bi al-shak*) (Al-Suyūṭiyy, 1983).

Second: The individual should have the criteria which showing that the person or group in the real situation to apply the Islamic ruling of *al-ḥājah al-khaṣṣah*. If the persons does not fit within the criteria to implement the ruling, then the status of ruling reverses to the first place as it was as stated in *qāʿidah fiqhiyyah* namely "the one which permitted due to need, it is not permitted without need" or in Arabic, "*ma ubīḥa li al-ḥājah, lam yubāḥ maʿa ʻadamiha"* (Ibnu Qudāmah, 1997).

Third: The ruling of *al-ḥājah al-khaṣṣah* shall be in temporary period of time. As long as the person or the group of people need that, then the ruling does takes place. As the need for something is on absent mode, then the ruling on it, is null. That situation implements a *qāʿidah fiqhiyyah* said "the one which allowed for excuse, is cancelled due to its non-existence" or in Arabic *ma jazāʾ li ʿuzrin, baṭala li zawalihi* (Ibnu Nujaym, 1999).

Reverting to this research, the researcher has viewed that women in pregnancy and puerperium are categorized as a certain group of people which belong to the term of *al-ḥājah al-khaṣṣah*. The group of pregnant and puerperium women has their own criteria to include in *al-ḥājah al-khaṣṣah* which is not possessed by other group of people. Pregnancy as well as puerperium women have normal and physiological changes during that period in term of their blood, hormones, emotional and physical. All these normal changes turn out their bodies to be more fragile and sensitive to some medicines and might experience harmful situation to herself and the baby if she is not attended with appropriate medical treatment.

According to that situation, pregnant and puerperium women need specific care which certain medicines are not suggested to be prescribed. Are those at-risk women necessarily judged with *al-ḥājah tunazzal manzilah al-ḍarūrah khaṣṣatan kānat aw ʿammatan*? It is noteworthy to explore the limitation, *qawāʿid fiqhiyyah* and implication related *ḥājah* in order to treat that question.

4.10.3.3 The Limitation of *Ḥājah* from *Sharīʿah* View

In recent decades, Islamic *fiqh* scholars have discussed in the matter of *ḥājah* comprehensively. Nonetheless, scholars in the past did not focus intensely for *ḥājah* measurement and its limitation because the definition between both terms; *ḍarūrah* and

ḥājah are distinguishable by many (Kāfiyy, 2004, Al-Rashīd, 2008). However, the problem remains complex to date, novel issues have geared towards *ḥalāl* and *ḥaram* law gradually such as to derive Islamic legal rules for prevention treatment in medical cases.

As presented earlier, there are guidelines of using *ḥājah* either *al-ḥājah al-ʿāmmah* or *al-ḥājah al-khāssah* in deriving legal rule. Depending on that guidelines, each type of *ḥājah* has been identified by its own limitation in the real context of life. On the major effect, the limitations of *al-ḥājah al-ʿāmmah* and *al-ḥājah al-khāssah* not only differ in period fixing attribute, but also in the effective existence of the human need.

The researcher commences with some conditions such as *al-ḥājah al-ʿāmmah* can be exemplified as necessarily need by the majority of individual in the community either the legal rule on it had been derived or not. This is supported by a statement of jurist, Ibnu Qudāmah al-Ḥanbaliyy (1997) mentioned that if the legal rule of *al-ḥājah al-ʿāmmah* is derived, then the legal rule will cover the whole people including those who do not need it such as *bayʿ salam*. To this effect, *bayʿ al-salam* industry have been demanded widely, thus, the researcher views its limitation is significant to be practiced consistently.

Besides, the limitation *al-ḥājah al-khāssah* is similar as compared to the previous type. It is primarily important to distinguish the limitation between the two as *al-ḥājah al-khāssah* rulings has been derived particularly on specific group or people. Apart from that, its limitation is temporary because the rule is applicable if the matter indeed, exists. This is supported by jurists' statement namely "something become legal by a valid excuse, it becomes illegal when the excuse ends" (Al-Suyūṭiyy, 1983, Ibnu Nujaym, 1999).

The example to be cited here are, such as one suffers out of water utilization directly on his/her body in which may lead to mortality or morbidity. On that occurrence, *tayammum* is recommended to those persons when the illness exists. Whenever the illness recovered, then he or she will be practicing the normal legal rule again.

In the implementation of legal rule towards VTE patients during pregnancy and puerperium in Malaysia, the limitation for them in using LMWH as prophylaxis or therapy will be employed under medical experts' supervision regarding their result of assessment.

The limitations of *ḥājah* below clarified by ʿIzz al-Dīn ʿAbd al-Salām (1991)are of which several elements proposed to use the method of adducting (*taqrīb*) to guide the principle of *ḥājah* in measuring the situation, rather than terminate it for the betterment of society.

First: Reasonable cause (*sabab*) of a need (*ḥājah*) is precluded in shariah in order to measure *ḥājah* limitation because *ḥājah* is very complex criteria to evaluate with bare eyes. Therefore, *sabab* element owing to difficulties shall present and arguable (Al-Kāsāniyy, 2003). The examples cited for the *sabab* which able to pose *mashaqqah* and *ḥaraj* that declared by shariah such as sick (*maraḍ*), forget (*nisyān*), compelled (*ikrāh*), silly person (*safīh*), insane (*junūn*).

Second: If the *sabab* is excluded in shariah, the element of *mashaqqah* shall exists in order to prove that *mukallaf* is indeed, in needy situation (*muḥtāj ilayh*). This is confirmed with the purpose of *ḥājah* in which to remove the difficulties or to eliminate the burden of needy person. The discussion about *mashaqqah* can be referred in the topic of *ḍarūrah*.

Third: The needs of people indeed, are not similar among each other and one is unable to judge other people' needs as similar as them. Widely varying human need owing to various causes, places and times for example, pregnant women need for treatment differ with non-pregnant women. Thus, the element of *mashaqqah* can be claimed as significant justification to implement the rule of *ḥājah* as concession (Al-Rashīd, 2008). The term need is verified and has significant relationship with *mashaqqah* to obtain something. Therefore, *ḥājah* rule is applicable for those who stumble in difficult situation. This matter is supported by Imam Al-Shāṭibiyy when he confessed that the *rukhṣah* is allocated for those facing *mashaqqah* (Al-Shāṭibiyy, 2010).

Logically, if a male doctor has been given exception to see female patients' *awrah* because of the need of certain treatment owing to no other alternatives from female doctors, then moderate risk known as patients at-risk with few risk factors of having VTE during pregnancy and puerperium shall be on the top of *al-ḥājah* rule because VTE may lead to maternal mortality.

In conclusion, integrating between *sharīʿah* measurement of *ḥājah* limitations and the risk evaluation of VTE amongst pregnant and puerperium women considered as a putative measure which can be a useful and valid device in legal ruling process.

4.10.3.4 The *Qawaid Fiqhiyyah* related to *Al-Ḥājah Al-Syarʿiyyah* for Thromboprophylaxis during Pregnancy and Puerperium.

The *qawāʿid fiqhiyyah* which related to *al-ḥājah al-syarʿiyyah* as following;

i. **The prohibition to blocking the bad is allowable if necessary *(Al-Fi'l Al-Manhi ʿAnhu Saddan li Al-Dharī'ah Yubāḥu li al-Ḥājah*** (Ibn Taimiyyah, 2004)

There are two kinds of prohibitions (*al-manhī* or *al-ḥaram*) while in the context of *ḥalāl* and *ḥaram* status, both kinds namely *al-manhī lidhātihi* and *al-manhī li ghairihi* (Al-Rashīd, 2008):

First: The prohibited matter because of its physical body (*al-manhī li dhātihi*). This kind of prohibition also called *taḥrīm al-maqāṣid* or prohibition due to *maqāsid al-sharīʿah* such as prostitution, steal, *ribā nasiʾah* and marry to *maḥram*.

Second: The prohibited matter because of other causes (*al-manhī li ghayrihi*). It is a prohibition due to other effective influencers, instead of its physical form. This second type of prohibition is called prohibition due to prohibition regarding its methods (*taḥrīm al-masālik*) or prohibition to block the bad occurrences (*al-muḥarramāt saddan li al-dharīʿah*). To better understanding, it was halal on its origin but due to some causes, the law subjected to be *ḥaram* if the causes present. Some appropriate examples given here such as wearing the silk garment for men. Silk is actually not forbidden, yet, it is prohibited for men to dress up with it. Nevertheless, if the men necessarily need to wear the silk for medication purpose, then the prohibition is exempted on men only.

Applying to this research, the law for thromboprophylaxis with LMWH is categorized as the first type of *al-manhī* due to porcine itself had reached the agreement as *al-manhī li dhātihi* according to majority of jurists. On another side, *ḥājah* principle deemed as weak basis to support *al-manhī li dhātihi* in affecting in Islamic legal rule changing, however, when the need for thromboprophylaxis with LMWH is ranked as necessity upon women who are at-risk even though moderate risk (score 3), then LMWH is permissible to be consumed for mortality prevention.

Meanwhile, *al-manhī taḥrīm bi al-masālik* also able to affect Islamic legal rule for reasonable purposes for instance in the case of Zubayr bin al-ʿAwwām and ʿAbd al-Raḥmān bin ʿAwf for permissibility to wear silk cloth to avoid from itchy and ʿArfajah bin Asʿad for concession to utilize fake nose made out from gold as clarified in the page 110 and 256.

Nonetheless, according to Mohd Hapiz (2016), division of *taḥrīm lī dhātihī* and *taḥrīm līghayrihī* is hardly applicable in today's modern owing to an avantgarde of environment, variety of social cross cultureand economical power in all aspects, the rivalry of entertainment and monetary life style. Subsequently, mankind suffers from obesity, workaholic life which leads to women experiencing pregnancy at 40 series of age, the increasing of caesarean cases of pregnancy. To these effects, the emergence of those lifestyle has designated life threatening diseases such as VTE itself.

In addition to that, most medicines production remains in economic constraint among Muslim capabilities as mentioned in Chapter 1, whereas medicines are ranked necessarily needed for medical purpose. Due to this situation, Mohd Hapiz had suggested a new system of classification of *al-ḥaram* which namely "agreed *al-ḥarām al-manhī"* (*ḥaram muttafaq fīhi*) and "disagreed *al-ḥarām al-manhī"* (*ḥaram mukhtalaf ʿalaihi*) which is thought able to solve Muslims crisis towards *ḥalāl* and *ḥaram* in all aspect of consumerism issue either food or non-food at appropriated manner.

iii. **If The Earth dominantly Covered by the Prohibitions, It Is Sufficient with A Need to Allow It's Usage, Without Reaching Necessity Level (*Law ʿAmma al-Ḥaramu al-Arda Uktufiya bi al-ḥājah fi Ibāḥatihi dūna al-ḍarūrah* (Al-Juwayniyy, n.d., Al-Nawawiyy, n.d.)**

That *qāʿidah* has outlined a guideline if the whole wide world is covered by haram only, consequently, Muslim consumerism has reached at the necessity level to use the haram item. Al-Zarkashiyy (1985) clarified that if the halal item is received rarely, in turn, Muslims allowed to consume anything which regarded as their need;

وإذا عم الحرام قطر بحيث لا يوجد فيه حلال إلا نديرا، فإنه يجوز إستعمال ما يحتاج إليه، ولا يقتصر على الضرورة

Meaning: If unlawful sources had covering a part of the world with which there is no found the *ḥalāl* sources unless very seldom, in turn it is permissible to use for consumption that needed, and not mere strictly used on *ḍarūrah* principle.

This *qāʿidah* also shows that *ḥājah* is considered as pertinent justification in dealing with a situation where a medicine approved its safety, efficacy, accessibility and feasibility.

ii. Anything refutes human need, so its role has become lawful (*Kullu shayʹ in yakūnu fihi dafʾun ḥājah al-nas al-masah fahuwa jāiz*) (Al-Qarāfiyy, 2010).

It is believed that this shariah urges the adherents to avoid all harm ways. On the other hand, Islam is absolutely repulsive to all kind of deteriorations and destructions in all circumstances either in a large or small scale. Thus, those who are in difficult situation are concerned in pressed need state. Indeed, this *qāʿidah* depicted to

us that *ḥājah* principle play pivotal role in evaluating cases to form legal rule (Ḥammād, 2004).

iii. If Everything Considered as Desperately Needed for Expansion, It is Wider (to be Ruled) (*Kullu mā ishtaddat al-Ḥājah ilā kāfati al-tawsiʿah fīhi akthar*) (Al-Zaylaʿiyy, n.d)

The theory distinguishes two different types of *ḥājah* in terms namely of its strength and weakness; tenacious need (*shadīdah*) and normal need (*ghayr al-shadīdah*) (Al-Rashīd, 2008) while the work of Wahbah al-Zuhaylīyy (1985) fall under two types either with slightly different nomenclature i.e. *ḥājah shadīdah* and *ḥājah ʿādiyyah*. It is useful to point out here that *al-ḥājah al-shadīdah* equivalent to *al-ḥājah al-mulāzamah* which translated as people will lives in difficulties if that *al-ḥājah al-shadīdah* is not furnished.

It has commonly been assumed that*al-ḥājah al-shadīdah* is exemplified in certain situations for instance, a need for a male doctor to see *awrah* part of female patient in order to perform further treatment such as vaginal examination onto pregnant women who expected to give birth, engagement purpose and *muʿāmalah* deal.

iv. Obligatory in Shariah, May Become License Due to A Need *(Al-Wājib bi al-Sharīʿah Qad Yurakhkhaṣu ʿInda al-Ḥājah)* (Ibn Taymiyyah, 2004)

According to surah Al-Taghābun verse 16, "*fattaqullaha mastaṭaʿtum*" clearly explained that Muslims must fear to Allāh and carry out Allāh's commands as much as you are able. However, if it is beyond one's capabilities or abilities, then Allāh uplifts the burdens and difficulties as mercies showered from Him upon his servants. This

qāʿidah al-ḥājah was developed on the basis of facility (*taysīr*) as a consequence able of authorizing the illicit sources.

v. Obligatory aborted due to a Need *(Al-Wājibāt Tusqiṭu li al-Ḥājah)*(Al-Kāsāniyy, 2003)

This *qāʿidah* explains that there is a license space for Muslim who has barriers to perform obligations due to his disability. Clearly, this *qāʿidah* also proved that *ḥājah* plays its role in excusing the obligatory as ordained in the first place as *ḍarūrah* principle. Moreover, the principle of *ḥājah* is needed in the Islamic legal rule of medical cases either which need preventive medicine like VTE during pregnancy and puerperium. However, the level of *ḥājah* need a scrupulous assessment from experienced and professional Muslim clinicians to decide the prescriptions. The researcher observes, the theory of *al-ḥājah al-māssah* or *al-ḥājah al-mulāzamah* or *al-ḥājah al-khaṣṣah* account fulfils the requirement to have *rukhṣah* for further treatments.

vi. Need is Ranked as Necessity either at General or Specific Context (*Al-Ḥājah Tunazzal Manzilah al-Ḍarūrah ʿĀmmatan Kānat aw Khāṣṣatan*) (Al-Juwayniyy, 1979)

Previous discussion amongst legal theorists and jurists went great pertaining *ḥājah* and its circumstances whether it is applicable to general people or certain group or a person. Taken together, jurists have suggested such *qāʿidah fiqhiyyah* in various phraseology in which immediately depicted that the construction of knowledge body of

ḥājah and its limitation has accorded to the numerous diction in *qawāʿid fiqhiyyah* (Al-Rashīd, 2008), for instance;

1) *Al-ḥājah al-ʿāmmah tunazzal manzilah al-ḍarūrah al-khāṣṣah fi ḥaqqi āḥādi al-ashkhaṣ.*
2) *Al-ḥājah fi ḥaqqi al-naṣ kāffatan tunazzal manzilah al-ḍarūrah fi ḥaqqi al-wāhid al-muḍṭar.*
3) *Al-ḥājah fi ḥaqqi al-ʿāmmah tunazzal manzilah al-ḍarūrah fi ḥaqqi al-āḥād*
4) *Al-ḥājah idhāʿammat kānat ka al-ḍarūrah.*
5) *Ḥājah al-jinsi qad tablugh mablagh ḍarūrah al-shakhṣi al-wāḥid.*
6) *Al-ḥājah al-ʿāmmah fi ḥaqqi kāfati al-khalqi tunazzal manzilah al-ḍarūrah al-khāṣṣah fi ḥaqqi al-shakhṣi al-wāḥid.*
7) *Iʿtibār al-ḥājah fi tajwīz al-mamnūʿ ka iʿtibār al-ḍarūrah fi taḥlīl al-muḥarram.*
8) *Al-maṣlaḥah al-ʿāmmah ka al-ḍarūrah al-khāṣṣah.*
9) *Al-ḥājah al-ʿāmmah tunazzal manzilah al-ḍarūrah al-khāṣṣah fi ṣuwar.*
10) *Ḥājah al-naṣ tajrī majra al-ḍarūrah.*
11) *Al-ḥājah al-ʿāmmah tunazzal manzilah al-ḍarūrah al-khaṣṣah.*
12) *Al-ḥājah tunazzal manzilah ḍarurah ʿāmmatan kānat aw khāṣṣatan.*
13) *Al-ḥājah al-ʿāmmah tunazzal manzilah al-ḍarūrah ʿāmmatan kānat aw khāṣṣatan.*
14) *Al-ḥājah al-mashhūrah qad nuzzilat manzilah al-ḍarūrah.*

Apparently, those *qawāʿid fiqhiyyah* support the assumption that *ḥājah* could be place as *ḍarūrah* role in excusing the obligatory and permitting to do or consuming the forbidden (Al-Rashīd, 2008). Imam Al-Ḥaramayniyy stressed in his words:

إن الحرام إذا طبق الزمان وأهله، ولم يجدوا إلى سبيل الحلال، فلهم أن يأخذوا منه قدر الحاجة

Meaning: "Indeed, the prohibition if it is used in a time and by its people, and at the same time, they do not find any way of halal, for them to take on limited need." (Al-Juwayniyy, n.d)

Al-Burnū (2003) also includes a *qāʿidah* in his book:

ما يستثنى من القواعد المستقرة: تحت الضرورات والحاجات

Meaning: "The one which is exempted from declared *qawāʿid*: under necessities and needs"

Nonetheless, the word of *ḥājah* in that situation referred to a pressed *ḥājah* in which totally not similar to the normal *ḥājah definition* (Al-Zuhayliyy, 1985). The difference between normal *ḥājah* with pressed *ḥājah* here in, known by people due to the criteria and signs expressed by the situation. That *qāʿidah fiqhiyyah* is not applicable to all matters which considered as absolute need by people, instead the pressed need is suitable to define the *qāʿidah al-ḥājah tunazzal manzilah al-ḍarūrah* beyond any doubt.

الحاجة إذا مست إلى إثبات حكم تسهيلا على قوم لا يمنع ذلك من التسهيل على أخرين ولا يضر.

Meaning: "The need if it is expanded to derive the legal rule so as to accommodate upon people, then it is not prohibited to do so in order to facilitate others and do not harm."

Al-Zarqāʾ clarified the context of *al-ḥājahtunazzal manzilah al-ḍarūrah* as an insisted that the need is dominant in a society. By attaining to that need, it would accommodate the society comprehensively even though *ḥājah* does not occupy the situation of *ḍarūrah* as it is not defined to threat *al-ḍarūriyyāh al-khamsah*. However, it is acting as *ḍarūrah* in terms of law executional (Al-Shāfiʿiyy (2001). Ibn Wakīl (2002) forwarded some *ḥājah* situations which have been ranked as *ḍarūrah* due to people's need such as *ijārah*, notwithstanding contradict with *dalīl*. Another example

given in his book is the odd views about eating forbidden things more than *sad al-ramaq* unless fearto death. Al-Juwayniyy (1979) also concurred that *ḥājah* has high potential to reach out the level of *ḍarūrah* by certain people.

Al-Rashīd (2008) suggested the most possible phrase of *qāʿidah fiqhiyyah* to describe *ḥājah* which able to be embedded as *ḍarūrah* is *al-ḥājah yumkin an tunazzal manzilah al-ḍarūrah,* which mean it may need be ranked as necessity rule and *al-ḥājah yazuj an tunazzal manzilah al-ḍarūrah* means *ḥājah*is allowable to be regulated as crucial as *ḍarūrah*.

a) Type of Al-Ḥājah Tunazzal Manzilah al-Ḍarūrah

Some Muslim disciples in the past such as Imām Al-Haramayn stated that general need is ranked as specific necessity, indeed, on individual basis (*al-ḥājah al-ʿammah tunazzal manzilah al-ḍarūrah al-khaṣṣah fi haqqi āhādi al-ashkhaṣ*) (Al-Juwayniyy, 1979) or the need of whole people is indeed ranked as individual's necessity (*al-ḥājah fī haqqi al-naṣ kāffatan tunazzal manzilah al-ḍarūrah fi ḥaqqi al-wāḥid*) (Al-Juwayniyy, n.d).

Al-Imām Al-Ghazāliyy (1971) also emphasized putatively that the 'general need' acquired by all creatures is ranked as necessity on individual basis or in Arabic *al-ḥājah al-ʿāmmah fī ḥaqqi kāffati al-khalqi tunazzal manzilah al-ḍarūrah al-khaṣṣah fīḥaqqi al-shakhṣi al-wāḥid* while Al-Zarkashiyy (1985) stated *al-ḥājah idhā ʿammat kānat ka al-ḍarūrah* means a need required by majority may rank it as necessity.

Furthermore, Al-Suyūṭiyy, (1983) and Ibnu Nujaym (1999) combined both sides and concurred in a phrase which comprising all aspects namely "*al-ḥājah tunazzal manzilah al-ḍarūrah ʿammatan kānat aw khaṣṣatan*". This *qāʿidah* eventually agreed

and accepted as the *tarjīḥ* one due to in line with this shariah concept which aiming at facilitating and eliminating the difficulties and uplifts Muslims burdens upon all mankind.

1. Example of *al-Ḥājah al-ʿĀmmah* and *al-Ḥājah al-Khāṣṣah*

Numerous examples being given under *ḥājah* justification either general or specific to act as *ḍarūrah* rule as following;

1.1 Example of Al-Ḥājah Al-ʿĀmmah

It is useful to point out here that *al-ḥājah al-ʿāmmah* can be figured out tremendously in *muʿāmalah* or financial section such as transfer (*ḥiwālah*), allowance/royalties (*juʿālah*), rental (*ijārah*) and sort because needed by most of the people (Al-Rashīd, 2008).

Al-Ḥiwālah for example, can be viewed as unique system and assist Muslims tremendously in life. Human usually stumbles upon debt issues and it could create inharmonic environment when the debtor and creditor have controversial fight between each other. Debtor is encouraged to hasten pay it off to the creditor due to avoid any delaying the payments as it deemed as wrongdoing in Islam.

Therefore, shariah allows the system of *ḥiwālah* to solve the problem of debt between them. *Al-Ḥiwālah* defined as "a transition that is due to someone else who can do it. In this circumstance, the transfer of dependents or the right of one person to another" (Nashuddin, 2016).

The source of *ḥiwālah* guided from the Prophet's Hadith of Imām al-Bukhāriyy and Muslim narrated from Abū Ḥurayrah, that the Messenger of Allāh, said:

عَنْ أَبِي هُرَيْرَةَ ـ رضى الله عنه ـ أَنَّ رَسُولَ اللَّهِ صلى الله عليه وسلم قَالَ "مَطْلُ الْغَنِيِّ ظُلْمٌ، فَإِذَا أُتْبِعَ أَحَدُكُمْ عَلَى مَلِيٍّ فَلْيَتْبَعْ".

Meaning: “Procrastination (delay) in paying debts by a wealthy man is injustice. So, if your debt is transferred from your debt to a rich debtor, you should agree.”
(Hadith. Al-Bukhāriyy, 1980,Vol. 3, Kitāb al-Dayn: #486)

Extrapolated from debt issue, *ḥiwālah* is permissible due to its ability to eliminate human difficulties, thus, considered as *al-ḥājah al-ʿāmmah* because all people usually have come across to deal with this distressed situation related to debt. Furthermore, Imām Al-Suyūṭiyy (1983) added that *al-ḥājah tunazzal manzilah al-ḍarūrah ʿāmmatan kānat aw khāṣṣatan* has embedded *bay’ al-dayn bi al-dayn* for general need either.

1.2 Example of Al-Ḥājah Al-Khāṣṣah

A possible explanation is allowing prohibitions for human need consumption in medical treatment is a result of *al-ḥājah al-khaṣṣah* for example,

وأن احتاج إلى لبس الحرير للحكة، جاز له

Meaning: “If he needs for wearing silk due to mangy skin, it is allowed for him.” (Al-Nawawiyy, n.d.)

This quotation clearly explains to us that it is allowable to undergo a treatment from unlawful material sources which is unauthorized for initial legal rule. The example cited here such as ʿAbd al-Raḥmān bin ʿAwf and Zubayr bin Al-ʿAwwām who identified to be mangy skin and it is important to bear in mind that irritated situation does not threat their lives at all, instead, it affects health quality for them.

According to the case of ʿAbd Al-Raḥmān and Zubayr bin Al-ʿAwwām who had unstable skin health problem, silk cloth is regarded as *ḥājahal-khaṣṣah* for those companions due to suffering with their skin rashes. That said, found in Prophet’s hadith guided them for silk cloth on treating skin rashes and scabies as saying:

أَنَّ أَنَسَ بْنَ مَالِكٍ، نَبَّأَهُمْ أَنَّ رَسُولَ اللَّهِ ـ صلى الله عليه وسلم ـ رَخَّصَ لِلزُّبَيْرِ بْنِ الْعَوَّامِ وَلِعَبْدِ الرَّحْمَنِ بْنِ عَوْفٍ فِي قَمِيصَيْنِ مِنْ حَرِيرٍ مِنْ وَجَعٍ كَانَ بِهِمَا حِكَّةٍ .

Meaning: "It is narrated that Anas (May Allāh please with him) said, "The Mesengger of Allah (PBUH) granted a concession to both ʿAbdul Raḥmān Ibn ʿAwf and Zubayr Ibn Al-ʿAwwām to wear silk garments for each on account of a skin disease causing itching they suffered,"
(Hadith. Ibn Mājah. Sunan Ibnu Mājah. Kitāb al-Libās. Bāb Man Rukhkhiṣa lahu fī Labsi al-Ḥarīr: Juz'1 #3592)

This hadith indicates the Prophet (PBUH) ordained to both companions who suffer skin rashes as precautionary measurement from worse stage. Imam Ibn Al-Qayyim stressed that there are two perspectives regarding that hadith namely medical perspective and Islamic jurisprudence perspective.

On the side of medical perspective, silk is produced from natural source, namely animal. People have experienced numerous benefits over silk cloth as its criteria contributes positive effects for skin sufferers. For instance, Al-Rāziyy said, 'silk is hotter than linen, colder than cotton and develops the flesh. Every type of thick clothes weaken the body and hardens the skins,' (Al-Jawziyyah, 2003).

Another *ḥājah* case related to medical issue in the time of Prophet (PBUH) is the hadith narrated about a companion called ʿArfajah bin Asʿad who wear fake nose made out from gold to avoid stench following his nose being cut off in the battle of Kulāb. That permission is ordained for ʿArfajah bin Asʿad on treatment justification because to dress up ornament made out from gold is prohibited for men whichcan be observed from this hadith:

عَنْ عَبْدِ الرَّحْمَنِ بْنِ طَرَفَةَ، أَنَّ جَدَّهُ، عَرْفَجَةَ بْنَ أَسْعَدَ قُطِعَ أَنْفُهُ يَوْمَ الْكُلاَبِ فَاتَّخَذَ أَنْفًا مِنْ وَرِقٍ فَأَنْتَنَ عَلَيْهِ فَأَمَرَهُ النَّبِيُّ صلى الله عليه وسلم فَاتَّخَذَ أَنْفًا مِنْ ذَهَبٍ .

Meaning: "ʿAbdul Raḥmān ibn Ṭarafah said that his grandfather ʿArfajah ibn Asʿad who had his nose being cut off at the battle of al-Kilab got a silver nose, but it developed a stench, so the Prophet (PBUH) ordered him to get a gold nose."

(Hadith. Abū Dāud. Sunan Abī Dāud. Kitāb al-Khātim. Bāb fī Rabṭi al-Asnān bi al-Zahab: #4232)

Prophet Muhammad (PBUH) uplifted the burden on ʿArfajah although his wounded nose did not threaten his life, but rather affected his quality of health as human being. For the sake of wellness, ʿArfajah bin Asʿad was situated in the category of *al-ḥājah al-khāṣṣah*.

In conclusion, beyond any doubt, Islam revealed to the world with the fundamental of *taysīr*. If skin health problem is allowed to use unlawful medication sources to eliminate the uncomfortable skin situation regardless to only specific people, not to mention the disease which may cause to mortality like VTE. This is supported by Al-Qayyīm Al-Jawziyyah, (2003) said the hadith is applicable to general men.

b) The Practices of *Al-Ḥājah Tunazzal Manzilah Al-Ḍarūrah in* Contemporary Medical Issues.

Advancements in medical treatment have been translated into better promotion of health, prevention and restoration of health. Nonetheless, to date, any symptoms of diseases emerge can be diagnosed and prevented early by detecting the risk of the disease. Furthermore, shariah scholars are encouraged to evaluate case by case according to Al-Quran, hadith, *ijmaʿ*, *qiyās* and certain methodologies to derive legal rule in order to solve novel issues related to health improvement nowadays.

It has commonly been assumed amongst jurists that, although *ḍarūrah* declared as amongst of the flexibility in providing *rukhṣah*, it is noteworthy that *al-ḥājah tunazzal manzilah al-ḍarūrah* can be a piece of evidence in solving novel issues either. Besides, the eligibility of *al-ḥājah tunazzal manzilah al-ḍarūrah* principle is applicable in some medical cases which been guided by certain *ḍawābiṭ* as stressed by Al-Zayr

(2010) so as conditions can be appropriately judged as similar as *darurah* condition and not misinterpreted (Al-Juwayniyy, n.d.).

Imām Al-Ḥaramayn said, 'general need' might reach the line of necessity of an individual (*al-ḥājah al-ʿammah qad tablugh mablagh ḍarūrah al-shakhsi al-wāhid*) (Al-Juwayniyy, 1979). The word of *qad al-taqliliyyah* used in the *qāʿidah* forwarded by Imām Al-Ḥaramayn indicates that not all situations of *ḥājah* can be translated to be *darurah* rule (Ibn Bayyah, n.d.). Following are the descriptions of the *ḍawābit*;

First: It should have a basis in relation to the objective of shariah, for example, human cloning (*al-istinsakh al-bashariyy*) is unacceptable to be categorized as *al-ḥājah tunazzal manzilah al-ḍarūrah* if it is argued under human production justification. In this regard, *al-istinsākh al-bashariyy* is forbidden if it deviates to human conspiration which will intermix and perplexity of genealogical lines. However, observing in the name of preservation of lineage as one of the objectives of shariah associated with correct method according to Islam, *al-istinsākh al-bashariyy* is allowed (Al-Zayr, 2010).

Second: The situation must reach the level of difficulty that beyond normal human capability (*al-mashaqqah ghayr al-muʿtaddah*) instead of merely normal difficulty (*mashaqqah muʿtaddah*) (Al-Shāṭibiyy, 2010, ʿAbd al-Salām, 1991). For example, influ or finger injured during Ramadan month can be said as normal difficulty which normal human able to bear those illnesses. While if the hardship is beyond normal human capability such as women in pregnancy and puerperium whom diagnosed with blood clot event at moderate risk, the condition could result to death. As the result, the unlawful medicine is permissible to be used.

Three: The condition of *ḥājah* case shall achieve the degree of certainty (*yaqīn*) or conjecture (*ẓan*). Consequently, the ruling of *ḥājah* is included in exception rule in

Shariah. The *qāʿidah* of *ḥājah* on the basis of *ghalabah al-ẓan* is regarded as similar as the rule of *yaqīn* (Ibn Nujaym, n.d.) were acceptable to be applied in medical cases for lives survival. The researcher has opined that the degree of *ghalabah al-ẓan* not less than doubt (*shak*) and fancy (*wahm*) because it is illegitimate stance on any case which based on a *qāʿidah*namely *lāʿibrah li al-tawahhum* (ʿAliyy Ḥaydar, 2004) and also *al-rukhaṣ la tunaṭ bi al-shak* (Al-Suyūṭiyy, n.d.).

Fourth: Shall identify that the *ḥājah* does not against the shariah principle (*uṣūl al-sharīʿah*). Sharīʿah scholars' opinion are at odd in this regard because some of them such as Al-Shāṭibiyy (n.d.)proposed that *ḥājah* matter should not go against legal text or *dalīl*. While some of them disagree with that because *ḥājah* itself developed on the exception basis which contrary to *dalīl*. This is based on the justification of *al-ḥājah tubiḥ al-maḥẓūrāh* and Muslim are given license for *ḥājah* matters (Al-Rashīd, 2008).

Applying to this research, moderate risk (score 3) group during pregnancy and low risk (score 2) during puerperium with complication of VTE event fulfilled all the *ḍawābiṭ* described above. S5 as a medical expert in O&G emphasized that the usage of LMWH such as Clexane is regarded as a need particularly those whom are at-risk.

MS5 (2019)	*"The issue is not about porcine or not. Instead, because of a need."*

The utilization of porcine base anticoagulant upon women in pregnancy and puerperium to prevent from VTE is highly recommended by MOH and it is considered a need to allow this unlawful substance medicine to mothers whom develops risk factors for VTE.

In fact, according to S1 and S6 as participants of this research said that in VTE case, women whom diagnosed as at risk of getting VTE during pregnancy and

puerperium starting at moderate risk considered as *ḍarūrah* to receive LMWH even though it is thromboprophylaxis because mother's life is precious and cannot be counted by percentage of dying to death.

MS1 (2019)	*"During pregnancy, we must understand. Previously, we say low risk but nowadays, pregnancy is the risk either normal risk, high risk or very high risk. Understand? Let say you are pregnant now and last pregnancy you did had DVT. Now, you are immediately under high risk group."*
MS6 (2019)	*"In thromboembolism, there is no difficult or hardship issues, because once diagnosed with it, then it can cause death," "thromboembolism causes to death, it's not about 50-50,"*

Observing the provisions of *al-ḥājah tunazzal manzilah al-ḍarūrah* principle, LMWH as thromboprophylaxis for women during pregnancy and puerperium complies all four *ḍawābiṭ*. Therefore, the researcher emphasizes that the application of *al-ḥājah tunazzal manzilah al-ḍarūrah* other than obstetric VTE shall conform to the *ḍawābiṭ* as above mentioned so that it will not fall into inaccurate methodology in deriving legal rule.

Most of the medical expert participants of this research had admitted the reduction of maternal mortality due to VTE by using LMWH as early as prevention. Below are among of their responses regarding that issue;

MS6 (2019)	*"Routinely, this hospital (Hospital Tunku Jaafar), Seremban and Sarawak hospital are among of the pioneers who run the program of assessment. In another word, mothers whom deliver by caesarean section must be given LMWH…I remember, almost 2 years these hospitals experience no maternal death,"*
MS7 (2019)	*"There is one hospital that does not any maternal death occurrence at all! I asked, 'how did you did that?' He answered, 'I required all my patients being prescribed low molecular weight heparin,"*

MS5 (2019)	*"Usually in this HUKM, I don't mean to be arrogant but as a matter of fact, maternal death is a rare occurrence. It has been over a year previously, no maternal death recorded and another year, it just one maternal death only,"*
MS3 (2019)	*"The past 6 years, I never came across with maternal death related to VTE at all,"*
MS2 (2019)	*"So I've started the program by a year program, in 2012, Sarawak MMR maternal mortality ratio per 100,000 is 29. in 2013, when I introduced this program, it become 9.3 per 100,000. MDG'5 was 11. Of course, to keep 9.3 all the time is difficult. So, after 9.3, the next year is 15 I think. and then after that, it fell to 9.3 again. So, the last five years, it always been much lower. Then the Malaysia MMR, and the size of Sarawak is the size of Peninsular. We've only four specialist hospitals."*

Based on the evidence collected from medical experts, the researcher found that the LMWH thromboprophylaxis program is accepted to mitigate maternal mortality or at least bleeding event (Barbar et al., 2010) in Malaysia due to its effectiveness and safety for those identified as high-risk and moderate-risk classes as early as preventive notwithstanding the rates in VTE in pregnancy at low frequency (Tran et al., 2018). In addition, the mitigation of maternal mortality is, indeed the implication of arguing *al-ḥājah tunazzal manzilah al-ḍarūrah* moderate risk mothers.

Above all, these are the succinct evidences to argue that *al-ḥājah tunazzal manzilah ḍarūrah* adhering with its *ḍawābiṭ* may be a premise to justify the moderate risk group mothers. The prevention of life-threatening diseases such as VTE during pregnancy and puerperium, makes safe motherhood and indeed a positive remark for life of mankind.

4.11 Global *Fatwā* regarding LMWH

Broadly, the existence of LMWH issue had indeed, draws the attention of Muslim clerics' and contemplates in issuing the fatwa regarding usage of porcine based LMWH that creates controversy over the globe. Regardless to popular trading brand of LMWH, the researcher found that the anticoagulant' legal rule differed between the countries, moreover fatwa statements imposed by personal opinion of prominent shariah scholars also varies from one to another.

Needless to say, the subject matter of concerned here is about the porcine itself which regarded as severe impurity in LMWH products and have been used as medication. Although there is no porcine residue identified following its manufacturing process, and it has been verified (Refer the appendix). Each authority has own methodologies in deriving legal rule pertaining to LMWH usage. Consequently, it has propelled civilians enormously towards endless debates, especially Muslim medical doctors as the one who accounted in prescribing LMWH upon the patients and Muslim' mothers who expected to consume such debatable anticoagulant.

The researcher will present two parts of further findings, which consist of part 1 regarding fatwa on LMWH extracted from the organizational *fatwā* councils and personal *fatwā* of shariah scholars internationally and nationally. While part 2 is the data collected from all participants of this research and verified with Cohen's Kappa method.

4.11.1 Part 1: *Fatwā* on LMWH over Muslim World

Fatwā had been released regarding LMWH from two *majmaʿfiqh al-islamiyy* namely, *Majmaʿ al-Fiqhiyy al-Islamiyy al-Duwaliyy* and *Majmaʿ al-Fiqhiyy al-Islamiyy li al-Rabiṭah al-ʿAlamīyy al-Islāmīyy*. Other than two big fatwa organisations at international

level, there are some ijtihad proposed by prominent shariah scholar recently such as Wahbah al-Zuhayli, *Dār al-Iftā´ al-Miṣriyyah*, as following:

4.11.1.1*Majmaʿ al-Fiqhiyy al-Islamiyy li al-Rabiṭah al-ʿAlamīyy al-Islāmīyy* (Kabsh, n.d.).

The *majmaʿ* held a16th meeting in Mecca to decide legal rule for LMWH for prevention and treatment of VTE in 19-23/10/1424H or 13-17/12/2003. They decided to declare that LMWH for blood clotting prevention treatment is permissible with *ḍarūrah* justification despite there is halal alternative due to benefits of LMWH are superior than halal anticoagulant or the halal alternative usage poses side effects to the patients.

Albeit their decision does not deny that LMWH had undergone *istiḥālah tāmmah*, instead their ultimate is justification is *ḍarūrah* situation of VTE disease which eligible to be given concession or *rukhṣah* regarding LMWH. The process of *istiḥālah* which transforms porcine mucosal into drug liquor substance. In order to eliminate the *mashaqqah* and take into account the amount of the usage based on *al-ḍarūrah tuqaddar biqadarihā*, LMWH is permissible to be consumed.

4.11.1.2 *Majmaʿ al-Fiqhiyy al-Islamiyy al-Duwaliyy* (Majmaʿ al-Fiqhiyy al-Islamiyy al-Duwaliyy, 2015)

The *majmaʿ* held a meeting on 22-24/5/2015 in Kuwait (*Majmaʿ al-Fiqhiyy al-Islamiyy al-Duwaliyy*, 2015): LMWH which produced from porcine base heparin is prohibited due to not conform with *istiḥālah* principle chemically. However, if LMWH substance modulated from genetic engineering method which manipulating from halal sources only is permissible for Muslim consumption.

Thus, it is clearly notable that the decision made by *Majmaʿ al-Fiqhiyy al-Islamiyy al-Duwaliyy* denied that LMWH had undergone the process of *istiḥālah* chemically. The *Majmaʿ* permits the usage of LMWH under the *darurah* and *hajah* justification in foods and medical areas based on the *qāʿidah fiqhiyyah* namely *al-ḍarūrāt tubīḥ al-maḥẓūrāt*.

4.11.1.3 *Fatwā* by Dr Wahbah al-Zuhayliyy

Personal fatwa from prominent Islamic *Fiqh* scholar, Dr Wahbah al-Zuhayliyy that LMWH which resulted from conventional heparin or UFH is allowed due to the principle of *istiḥālah tāmmah* and principle of *ḍarūrah* and *ḥājah* in the food or medical fields. Besides, the law of permissibility of LMWH must go through chemically process that transforms the porcine mucosal intestine thoroughly until the porcine source cannot be detected anymore. If the manufacturing does not fulfil *istiḥālah tāmmah* chemically and physically, then LMWH cannot be judged as permissible (Al-Zuhayliyy, 2015).

4.11.1.4 *Fatwā* of Singapore

MUIS imposed that porcine base heparin had totally undergone the process of *istihlāk* and high concentration which referring to the presence of porcine DNA in heparin is allowed according to the few hadiths of treatment with camel urine, wearing silk cloth for mangy skin treatment and wearing fake nose made out of gold to avoid smelly wound nose. Following is the quotation about the final decision regarding heparin which produced from porcine;

> "Based on the evidences and arguments set out above, the Fatwa Committee views that low-concentration heparin derived from pig enzymes is permitted, as it has gone through a process of *istihlāk* which completely eliminates all traces of *najis*. As for high-concentration heparin, the Fatwa Committee also views that it is permitted when certain patients require it, in order to avoid danger and harm. This is based on the verse of the Qur'an:

"Do not throw (yourselves) with your (own) hands into destruction. And do good; indeed, Allah loves the doers of good." (Surah al-Baqarah 2:195)" (MUIS, 2017)

The MUIS regards low-concentration heparin as LMWH while high-concentration heparin as conventional UFH which produced from porcine either. Thus, MUIS forwarded the argument with *istihlāk* principle wherein the LMWH mixed into *ḥalāl* chemical called liquid sodium and eventually resulting drug substance which transforming the porcine mucosal intestine.

4.11.1.5 *Dār al-Iftā´ Al-Miṣriyyah* (Dār al-Iftā´ Al-Miṣriyyah, 2014)

They declared that heparin status in Islam is allowed if it had transformed chemically from porcine to another new form due to *istiḥālah* is legal tool of filth purification in *sharīʿah*. If heparin does not undergo the process of *istiḥālah* completely, then *ḍarūrah* principle permits for Muslim consumption based on Chapter al-Anʿām verse 119 and Al-Baqarah verse 173. Thus, clearly that the justification which underpin by *Dār al-Iftā´ al-Miṣriyyah* is *istiḥālah* principle if the heparin without enunciated LMWH specifically.

4.11.1.6 Negeri Sembilan *Fatwā* State Council

They do not allow any usage of LMWH because there is halal alternative called Fondaparinux (MAL 20034441A) which said that its potential as similar as LMWH. However, LMWH can be permitted when there is no other alternative is the principle of *ḍarūrah* (MUFTINS, 2019). Clearly said, the principle of *ḍarūrah* will verify the permissibility to use LMWH for VTE management.

4.11.1.7 Sarawak *Fatwā* State Council

They declared that Clexane and Fraxiparine are prohibited due to the presence of *ḥalāl* alternatives which possesses the capability of becoming as effective as LMWH. LMWH is allowed when there is no way out to save lives unless through consuming it. Eventually, *ḍarūrah* principle is applicable for Clexane consumption (Mufti Negeri Sarawak, n.d).

4.11.1.8 MCMKI

An 87th meeting of Committee of Religious Affairs was held on 23rd -25th of June 2009 discussed on Islamic legal rule on the usage of Clexane and Fraxiparine. Committee decided (JAKIM, 2015):

1. Islam prohibited the usage of medicine which made out of unlawful sources to treat a disease except *ḥalāl* source medicine is inaccessible and to prevent harm according to the required rate only until the halal source medicine is found.
2. Therefore, as the usage of Clexane and Fraxiparine are necessarily needed (*ḍarūrah*) upon patients to prevent blood clot formulation which could occurs immediately in chronic condition, the committee decided to impose that both types of the medicines are prohibited due to its unlawful sources in the sight of Islam as currently there is an alternative medicine called Arixtra which is lawful source extraction and it effectiveness as similar as Clexane and Fraxiparine.

MCMKI argued that Clexane and Fraxiparine are only permitted to consume them under *ḍarūrah* justification regardless *istiḥālah* or *istihlāk* principle and *ḥājah* principle.

Table 2.2: Data on *Fatwā* of LMWH collected all over *Fatwā* Organizational Councils internationally and nationally

Level	Organization of *Fatwā*/Individual	Date of Gazetting the *Fatwā*/Veneu	*Fatwā*	Justification	Reference
International	Majmaʿ al-Fiqhiyy al-Islāmiyy li al-Rābiṭah al-ʿĀlamiyy al-Islāmiyy	- 13-17/12/2003 - Mecca	permissible	✓ *ḍarūrah* ✓ *Istiḥālahtāmmah*	(Kabsh, n.d.)
	Majmaʿ al-Fiqhiyy al-Islāmiyy al-Duwaliyy	- 22-24/5/2015	Prohibited	☒ Not conform to *istiḥālah* principle ✓ Allowed when *ḍarūrah* and *ḥājah* only	(Majmaʿ al-Fiqhiyy al-Islāmiyy li al-Rābiṭah al-ʿĀlamiyy al-Islāmiyy , 2015)
	Dr Wahbah al-Zuhayliyy	- 2015	Permissible	✓ *Istiḥālahtāmmah* ✓ *Ḍarūrah* ✓ *Ḥājah*	(Al-Zuhayli, 2015)
	Fatwā of Singapore (MUIS)	NA	Permissible	✓ *istihlāk* ✓ *Ḍarūrah* ✓ *Ḥājah* ✓ *Maṣlaḥah*	(MUIS, 2017)
	Darul Iftā´ Al-Miṣriyyah	NA	Permissible	✓ *istiḥālah*	(Dār al-Ifta´ Al-Misriyyah. (2014)
National	Malaysian National Fatwa Council (MCMKI)	- 23-25/6/2009	Prohibited	✓ *Istiṣḥāb* ✓ Allowed when *ḍarūrah* only ✓ The existence of halal alternative	(JAKIM, 2015)

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	Negeri Sembilan Fatwa State Council	NA	Prohibited	✓ *Istiṣḥāb* ✓ Allowed when *ḍarūrah* only ✓ The existence of Halal alternative	(MUFTINS, 2019)
	Sarawak Fatwa State Council	2012	Prohibited	✓ *Istiṣḥāb* ✓ Allowed when *ḍarūrah* only ✓ The existence of Halal alternative	(Mufti Negeri Sarawak, n.d.)

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4.11.2 Part 2: Data from Interview Sessions

In this part, the researcher presented the data collected from three different fields which using interview method, they are medical, pharmaceutical and shariah. The data presented herein had been coded according to research questions of this research. In the treatment of research objective, Cohen's Kappa method had been used in the coded data analyzation at the final stage.

Table 2.3: Data collected from medical experts

MAIN PURPOSE OF THE RESEARCH		**To propose contemporary *ijtihād* on LMWH by using necessity (*ḍarūrah*) model for thromboprophylaxis during pregnant and puerperium in Malaysia from *fiqh* perspective.**									
RQ	**THEME**	**THEME DESCRIPTION**	**MS 1**	**MS 2**	**MS 3**	**MS 4**	**MS5**	**MS6**	**MS7**	**MS8**	**MS9**	**MS 10**
RQ1: What is the prevention and treatment of VTE during pregnancy and puerperium?	Maternal Mortality Target	1. Locality hospital data shows that the reduction of maternal mortality due to VTE attributable to the prophylaxis and therapeutic with LMWH (Clexane).	√	√	√	X	√	√	√	√	√	X
		2. According to department of statistic of Malaysia, in 2016/2017 the principle cause of maternal mortality is embolism/VTE.	√	√	√	√	√	√	√	√	√	√
	Thromboprophylaxis	1. Thromboprophylaxis with LMWH is a necessarily needed (*ḍarūrah*) because the rate of maternal	√	√	√	√	√	√	√	√	√	X

		mortality related VTE is major leading in Malaysia currently.										
		2. Risk Assessment of VTE- KKM 2017 is relevant to be implemented for thromboprophylaxis.	√	√	√	√	√	√	√	√	√	√
	Anticoagulants	1. LMWH which is porcine base anticoagulant such as Enoxaparin (Clexane) and Tinzaparin (Innohep) highly recommended for thromboprophylaxis during pregnancy and puerperium due to efficacy, bioavailability, safety and cost effective.	√	√	√	√	√	√	√	√	√	√
		2 Bovine base anticoagulant such as Unfractionated Heparin (UFH) is used widely hospital, however, its side effect is greater than LMWH.	√	√	√	√	√	√	√	√	√	X
		3. Fondaparinux (Arixtra) which is free from animal derivatives anticoagulant is not recommended for pregnant and puerperium women due to lack of safety profile and not cost effective.	√	√	√	√	√	√	√	√	√	√
RQ 2: How does principle of shariah	The Application of *ḍarūrah* principle for thromboproph	1. The high-risk group (score 4 and above) is classified as necessarily needed (maximum *ḍarūrah*) for thromboprophylaxis during pregnancy and puerperium.	-	-	-	√	√	√	√	√	√	√

dealing with porcine based anticoagulant as a preventive medicine from *fiqh* perspective?	ylaxis with LMWH during Pregnancy and Puerperium.	2. The moderate risk (score 3) is classified as tenacious need (*al-ḥājah tunazzal manzilah ḍarūrah)* as similar as minimum *darurah* for thromboprophylaxis during pregnancy and puerperium.	-	-	-	√	√	√	√	√	√	X
	Biotransformation (*Istiḥālah*)	1. Certified laboratory test found that Enoxaparin Sodium has no residue of porcine DNA. On another hand, LMWH had been purified from porcine through biotransformation (*istiḥālah*) method.	√	√	√	√	√	√	√	√	√	√
		2. International Fatwa permitted the *istiḥālah* measurement of Islamic ruling.	-	-	-	√	√	√	√	√	√	√
RQ3: What is the recommended contemporary *ijtihād* regarding LMWH as preventive medicine upon pregnant women and puerperium to reduce maternal	Integrated Shariah-Medic Parameter according to Risk Assessment VTE-KKM 2017	1. To assist front liners either *muftiyy*/Islamic authority for instance MCMKI to review fatwa in 2009 regarding LMWH such as Clexane for thromboprophylaxis during pregnancy and puerperium.	-	-	-	√	X	X	√	√	√	X
		2. Integrated model between shariah experts and medical specialist is pertinent to be established.	-	-	-	√	X	X	√	√	√	X

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mortality in Malaysia?												
Percentage (%)			**100 %**	**100 %**	**100 %**	**92 %**	**85 %**	**85 %**	**100 %**	**100 %**	**100 %**	**46 %**
Average of cumulative percentage (%)			**81%**									

CLUES**:**

√ : Agree/Yes
X : Disagree/No
−: Questions not being raised to
* : Repulsive to response

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Table 2.4: Data collected from pharmaceutical experts

MAIN PURPOSE OF THE RESEARCH	**To propose contemporary *ijtihād* on LMWH by using necessity (*ḍarūrah*) model for thromboprophylaxis during pregnant and puerperium in Malaysia from *fiqh* perspective.**				
RQ	**THEME**	**THEME DESCRIPTION**	**PE1**	**PE2**	**PE3**
RQ1: What is the prevention and treatment of VTE during pregnancy and puerperium?	1. Prevention	Prevention of VTE during pregnancy and puerperium is necessarily needed.	√	√	√
	2. Types of anticoagulant	1. Porcine base anticoagulant like LMWH (Enoxaparin Sosium) and Tinzaparin (Innohep) highly recommended due to efficacy, bioavailability, safety and cost effective.	√	√	*
		2. Bovine base anticoagulant such as Unfractionated Heparin (UFH) is used widely hospital, however, its side effect is greater than LMWH.	√	√	*
		3. Fondaparinux (Arixtra) which is free from animal derivatives, yet it is not recommended for pregnant and puerperium women due to lack of safety profile and not cost effective.	√	√	*
RQ 2: How does principleof shariah dealing with	4. Biotransformation (*Istiḥālah*)	1. Certified laboratory test found that Enoxaparin Sodium has no residue of porcine DNA. On another hand, LMWH had been purified from porcine through biotransformation (*istiḥālah*) method.			

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porcine based anticoagulant as a preventive medicine from *fiqh* perspective?			X	√	X
		2. *Istiḥālah* could be a measurement of purification in halal pharmaceutical	X	√	X
RQ 3: What is the recommended contemporary *ijtihād* regarding LMWH as preventive medicine upon pregnant women and puerperium to reduce maternal mortality in Malaysia?	5. Current *fatwā*	Agree the current *fatwā* on LMWH need to be reviewed.	√	√	X
		Current *fatwā* will further lead people (doctors, pharmacist and patients) to the misconception in make decision.	√	√	X
Percentage (%)			**75%**	**100%**	**13%**
Average of cumulative percentage (%)			**63%**		

CLUES**:** √ : Agree/Yes, X : Disagree/No, – : Questions not being raised to, * : Repulsive to respond

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Table 2.5: Data collected from Shariah experts

MAIN PURPOSE OF THE RESEARCH	**To propose contemporary *ijtihād* on LMWH by using necessity (*ḍarūrah*) model for thromboprophylaxis during pregnant and puerperium in Malaysia from *fiqh* perspective.**								
RQ	**THEME**	**THEME DESCRIPTION**	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**
RQ1: What is the prevention and treatment of VTE during pregnancy and puerperium?	1. Disease Prevention in Islam	1. Islam views prevention of contiguous diseases without risk factors for example vaccine is permissible (*mubaḥ*).	√	√	√	√	√	√	√	√
		2. Islam views prevention of life-threatening diseases such as VTE during with risk factors is permissible (*mubaḥ*).	√	√	√	√	√	√	√	√
RQ 2: How does principle of shariah dealing with porcine based anticoagulant as a preventive	2.Validity of biotransformation (*istiḥālah*)	1. *Istiḥālah nāqisah*	X	X	√	X	X	√	X	X
		2. *Istiḥālah tāmmah*	√	√	X	√	√	X	√	√

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medicine from *fiqh* perspective?	3. Islamic ruling on seeking treatment from unlawful sources like porcine derivatives.	1. Unlawful sources of medicine but advantages proved by evidences (efficacy, safe, bioavailability, cost effective) is allowed.	√	√	√	√	√	√	√	√
		2. Halal alternative but disadvantage (not easy to admin, less efficacy, less safe profile, expensive) is not the first option.	√	√	√	√	√	√	√	√
	4. Specialists View (*Khibrah*)	1. Clinical Practical Guideline (CPG) and Risk assessment of VTE during Pregnancy and puerperium produced by MOH is reliable to impose *fatwā*.	√	√	√	√	√	√	√	√
		2. Ghalabah al-zan ahl khibrah (O&G medical doctors) is reliable to impose *fatwā*.	√	√	√	√	√	√	√	√
	5 The Application of *ḍarūrah* principle	1. The high-risk group (score 4 and above) is classified as								

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	for thromboprophylaxis with LMWH during Pregnancy and Puerperium.	necessarily needed equivalent to (maximum *ḍarūrah*) for thromboprophylaxis during pregnancy and puerperium.	√	X	√	√	√	X	√	X
		2. The moderate risk (score 3) is classified as pressed need (*al-ḥājah tunazzal manzilah ḍarūrah)* equivalent to minimum *ḍarūrah* for thromboprophylaxis during pregnancy and puerperium.	X	√	X	X	√	√	√	√
RQ3: What is the recommended contemporary *ijtihād* regarding LMWH as	6 Current *fatwā*	1. Agree the current *fatwā* on Clexane is reviewed to make LMWH (Clexane) is permissible.	√	√	√	√	√	X	√	√
		2. *Fatwā* able to influence people (doctors, pharmacist and patients) in decision making.	√	√	√	√	√	√	√	√

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preventive medicine upon pregnant women and puerperium to reduce maternal mortality in Malaysia?	7	Integrated Shariah model with the Risk Assessment VTE-KKM 2017	1. To assist front liners either *muftiyy*/Islamic authority like JAKIM to impose *fatwā*.	√	√	√	√	√	√	√	√
			2. Integrated model between shariah experts and medical specialist is pertinent to be established.	√	√	√	√	√	√	√	√
Percentage (%)				**86%**	**86%**	**86%**	**86%**	**93%**	**79%**	**93%**	**86%**
Average of cumulative percentage (%)				**87%**							

CLUES:

√ : Agree/Yes, X : Disagree/No, −: Questions not being raised to, * : Repulsive to response

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4.11.3 Conclusion

The themes are coded according to the research questions while the themes forwarded in the table answers the research questions. To enable the emerging themes to stand, the reseacher justify them with using the concept of preponderance of data in which checking the dominan participants' responses. This method is clarified by Noor Saazai (2014) in her Phd thesis that Sharan Merriam stressed on emerging themes which can be based on the preponderance of the data. Thus, the researcher needs to obtain half of the agreement in each specialization; medical, pharmaceutical and shariah. Following are the themes which answer the research questions of this research according to the fields of experts;

Medical: (1) maternal mortality, (2) thromboprophylaxis, (3) anticoagulants, (4) *ḍarūrah*, (5) biotransformation (*istiḥālah*) and (6) parameter

Pharmaceutical: (1) Prevention (2) Types of Anticoagulants (3) biotransormation (*istiḥālah*) (4) current *fatwā*

Shariah: (1) Prevention of disease in Islam (2) Biotransformation (*istiḥālah*) (3) Islamic ruling on seeking treatment from unlawful material like porcine derivatives (4) Specilist's review (*ahl al-khibrah*) (5) *Ḍarūrah* (6) Current *Fatwā* (7) Parameter

All data thereof being revealed in this chapter and the analyzation of Islamic legal rule for this research will be analysed in the next chapter.