

Shariah Compliance Human Milk Sharing Online Application

Syakirah Zahar^a, Zilal Saari^{b*}, Farahwahida Mohd Yusof^b, Siti Mariam Ali^c

^a*Islamic Civilization Academy, Faculty of Human Science and Humanities, Universiti Teknologi Malaysia, 81310 Johor Bahru, Johor, Malaysia.*

^b*Centre of Research for Fiqh Science and Technology, Islamic Civilization Academy, Faculty of Human Science and Humanities, Universiti Teknologi Malaysia, 81310 Johor Bahru, Johor, Malaysia.*

^c*Ministry of Health Malaysia, Kompleks E, Pusat Pentadbiran Kerajaan Persekutuan, 62590 Putrajaya, Malaysia*

*Corresponding author: zilal@utm.my

Article history

Received: 2019-01-06 Received in revised form: 2019-03-21 Accepted: 2019-07-07 Published online: 2019-10-07

Abstract

In this era of Industrial Revolution 4.0, everyone relies on the Internet in their daily lives. Recent research shows the blooming of Internet-based milk sharing, i.e. Eats On Feets and Human Milk 4 Human Babies, which are already operating in nearly 40 countries. Both organisations mentioned use Facebook to connect mothers, and practise under a commerce-free model in which milk is not bought and sold, but is freely given. However, Muslim community cannot fully utilize this platform as Islam has several guidelines regarding human milk sharing which is not covered by them. This paper presents a framework for milk sharing online web application that complies with Islamic laws featuring storing donors and recipients data in the database, managing human milk transactions and connecting both parties in the form of 'Family Tree' to keep track and avoid confusion regarding mixed lineage. The research methodology base on the (1) urgent need to find a human milk supply, especially for preterm babies, sick infants and those infants that cannot be breastfed, (2) high awareness of mothers who are awarded with surplus human milk to share their milk to the infants in need, and (3) online human milk selling phenomenon that will cause confusion especially among Muslims related to mahram and heredity, their infant's safety and health issues. As a conclusion, this system is able to provide solutions to all three interrelated issues. The privilege of this system is that it provides the opportunity for infants to enjoy human milk from other women, while at the same time linking the siblings' linkages as outlined by Islamic law.

Keywords: human milk sharing, wet nursing, online application, breast milk, Shariah compliance

1.0 INTRODUCTION

The main purpose of shariah compliance milk sharing application system is to gather human milk donors' and recipients' data in one place. It is a customer data processing system and ensures that milk sharing activities are carried out efficiently, reliable and shariah compliant. This system will be the first in Malaysia and will be used to meet the needs of the community, especially by sick mothers or those who cannot produce milk to feed their infants, a preterm infant or an infant whose mother died. It will connect the BM donor and the BM recipient online.

Department of Statistics Malaysia (2018) recorded in its official portal the total number of Malaysian are 32.66 million and for Muslim population is 61.3% which is the majority community in this country. Therefore, this system focus on Muslim women, ages between 20 to 40 years old where they are among the highest internet users (Department of Statistics Malaysia, 2019).

Previously, there has been a practice of these informal human milk sharing, either online or offline. Parents have handed their baby to the wet nurse is considered to be the norm in ancient societies. They also make it as an occupation as in Roman times, the family will hand over the baby to the wet nurse right after the birth. Meanwhile, women who want to do wet nursing will gather at *Columna Lactaria* to advertise their services (Zilal, 2015). In Islamic tradition, Prophet Muhammad has Halimatus Sa'adiyah to wet nursing him after his mother, Aminah cannot continue producing milk to feed him. A wet nurse from rural area is more preferable for them as they hope the baby will grow up into a dignified man as their perception towards city woman is being lazy and weak. In this Internet age, people advertise wet nursing through online such as Facebook, website and so on. The problems arise when there is no systematic system to record and trace the milk mother and milk child data, especially for Muslim participants as milk sharing activities could affect their relationship status in Islam (Zaydan, 1997). If this issue disregards by all, a problem such as milk sibling marriage might occur which is prohibited in Islam. Therefore, if this first step is not taken by developing a data system that on par with current trends, breastfeeding world will be left behind compare to other services.

1.0 PROBLEM STATEMENT

Human milk sharing is not a foreign issue in society in Malaysia and around the world. In fact, the establishment of human milk bank has been accepted and practice in the West. However, for Muslim societies, human milk sharing needs to be well managed in order to preserve heredity for those involved in the activity. Therefore, the development of this system is based on three issues:

1. First, there is an urgent need for human milk, especially for preterm babies, sick infants and those infants that cannot be breastfed.
2. Secondly, the community is increasingly aware of the importance of human milk to accommodate the infant's nutritional needs.
3. Thirdly, there are mothers who are awarded with surplus human milk, throw away the milk as they do not know what to do with it. In other cases like human milk selling, contamination of cow's milk is a concern. Buying the milk without knowing the

mother who provide it, put it at a high risk, especially in terms of health and mixing of lineage for the Muslim community.

Therefore, this system is able to provide solutions to all three interrelated issues. The privilege of this system is that it provides the opportunity for infants to enjoy human milk from other women; connect and strengthen the milk mother-infant bond as outlined by Islam.

2.0 LITERATURE REVIEW

2.1 The Importance of Human Milk In Science And Islamic View

Human milk is the best milk and contains essential nutrients, especially for baby infants. Human milk is incomparable by any other milk as it contains antibodies, enzymes, lactic, probiotic, lipid, proteins, docosahexaenoic acid (DHA) arachidonic acid (AA), and prebiotic. The advantages of human milk are as follow: (Dambra-Candelaria, 2017)

- Contains all nutrition needed by infants
- Have antibodies that work against the disease
- Contains enzymes
- Easy digestion and in accordance with the condition of the baby's premature intestine, which is still not fully developed
- No contamination

Based on the importance of human milk, Allah s.w.t tells us some of its advantages and stories in His Holy Book al-Quran:

Translation: “*And We have enjoined on man doing of good to his parents; with trouble did his mother bear him and with trouble did she bring him forth; and the bearing of him and the weaning of him was thirty months; until when he attains his maturity and reaches forty years, he says: My Lord! grant me that I may give thanks for Thy favor which Thou hast bestowed on me and on my parents, and that I may do good which pleases Thee and do good to me in respect of my offspring; surely I turn to Thee, and surely I am of those who submit*”.

[Al-Ahqaf, 46: 15]

Another verse regarding breastfeeding as mentioned in surah Luqman:

Translation: “*And We have enjoined man in respect of his parents-- his mother bears him with faintings upon faintings and his weaning takes two years-- saying: Be grateful to Me and to both your parents; to Me is the eventual coming*”.

[Luqman, 31: 14]

Allah s.w.t also mentioned in his holy Quran:

Translation: “*And the mothers should suckle their children for **two whole years** for him who desires to make complete the time of suckling; and their maintenance and their clothing must be-- borne by the father according to usage; no soul shall have imposed upon it a duty but to the extent of its capacity; neither shall a mother be made to suffer harm on account of her child, nor a father on account of his child, and a similar duty (devolves) on the (father's) heir, but if both desire weaning by mutual consent and counsel, there is no blame on them, and **if you wish to engage a wet-nurse for your children, there is no blame on you so***

long as you pay what you promised for according to usage; and be careful of (your duty to) Allah and know that Allah sees what you do”.

[Al-Baqarah, 2: 233]

The verses above shows that Islam favour those who wants to practise an exclusive breastfeeding to their infants and find them a wet nurse. However, this practice in Islam causes the wet nurse become a mother to the child and her biological children and the child may become siblings. Thus, marriage is prohibited among them.

Translation: “**Forbidden to you** are your mothers and your daughters and your sisters and your paternal aunts and your maternal aunts and brothers’ daughters and sisters’ daughters and **your mothers that have suckled you and your foster-sisters** and mothers of your wives and your step-daughters who are in your guardianship, (born) of your wives to whom you have gone in, but if you have not gone in to them, there is no blame on you (in marrying them), and the wives of your sons who are of your own loins and that you should have two sisters together, except what has already passed; surely Allah is Forgiving, Merciful”.

[An-Nisa’, 4: 23]

Therefore, to avoid confusion and any mixing lineage, it is important for Islamic community especially, to have a platform where they can practice milk sharing that comply with shariah law.

2.2 Human Milk Bank in Western Countries

The awareness of breastfeeding in some countries shows a good improvement. The rise in infant mortality has open world’s eyes and resulting the establishment of the Human Milk Banking Association of North America (HMBANA), which is one of breastfeeding community US-based websites. HMBANA is a medium for collecting, processing and managing human milk delivery to the infants in need. In addition, HMBANA provides advocacy towards mothers with surplus milk and mothers who face problem in breastfeeding. HMBANA also actively conducts studies on recent issues related to breastfeeding. Among the HMBANA approaches are to support breastfeeding activities for infants, especially preterm babies. The mission and vision of HMBANA, is undeniably beneficial to society (<https://www.hmbana.org/>). However, the distribution of expressed milk to the infants in term of unlabelled milk, is a major concern for HMBANA occurs among Muslims in our country as milk sharing may affect mother and infant’s relationship in term of Islamic law.

The United States is seen as a frontier country in providing awareness and providing a medium for breastfeeding to infants in need. Under the organization Rocky Mountain Children's Health Foundation has established Mother's Milk Bank (MMB) which has been in operation since 1984. MMB’s goal is to provide human milk for preterm infants and babies in need. Mother's Milk Bank do the human milk collection, screening tests and provide a platform for the mothers to do milk sharing, especially to preterm babies. 34 years of the establishment of MMB, five million ounces of human milk have been donated to preterm infants throughout the United States and Canada. (www.MothersMilk.org/) The good response of the milk bank gives an idea for researchers to develop a shariah compliance milk sharing application in this 21st century. Moreover, the shariah compliance is the crucial aspect in this study as it meets the requirements of the Muslim community in Malaysia such health concern, safety issue and milk mother-child relationship.

3.0 METHODOLOGY

The project methodology is divided into 3 phases:

1) Need Analysis

This phase uses focus group discussion methods where the respondents and the experts in the field is gathered to discuss the issue of human milk sharing from their perspective according to their expertise and experience. Sample information was obtained through a purposive sampling technique. The number of informants are as in Table 1 below:

Table 1 Number of Informants

Group	Respondent/ Informant	#
1	Donor	1
2	Recipient	1
3	Health Officer	1
4	Legal Officer	1
	Total	4

The discussion was conducted on 11 June 2018 at University of Technology Malaysia, Johor Bahru. All panels are invited by phone calls and official letters. They are required to prepare a paper or presentation slide on the topics that have been set. The discussion is recorded and analysed to obtain inputs for system development.

2) System Development

For system development, Evolutionary Prototyping is a system application development methodology that can be fully realized. The objective of this approach is to produce a system that works to end users. Starting with clearly understood user requirements, prototypes are built and evaluated so that their specifications are met before being implemented as a final application (Suraya Yusof, 2006). The phases involved are shown in Figure 1 below.

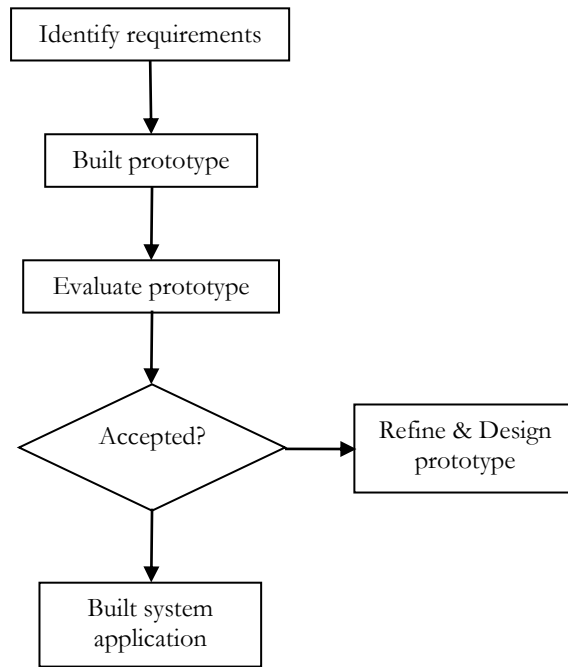


Figure 1: Flow chart Of Evolutionary Prototyping

i. Identify requirements

All necessary requirements such as user requirements, functional requirements and non-functional requirements are identified.

ii. Built prototype

Paper prototyping follows by prototyping tool.

iii. Evaluate prototype

After the prototype is built, the evaluation is necessary to ensure that the system will be produced to meet the needs of the users.

iv. Refine and design prototype

The resulting system will be modified to meet the required criteria and the appropriate attention is necessary so that the prototype meets the needs of the user.

v. Build system application

If all parties are satisfied with the proposed prototype, the system generated will be disseminated and ready for use by the client.

3) System Testing Phase

System testing is carried out by conducting a survey. A set of questionnaires will be developed to identify the effectiveness of the developed system. A total of 50 respondents were

targeted to test this system. The data obtained from the survey will be analyzed using IBM Statistical Package. The statistical test to be used in this study is descriptive.

4.0 FINDINGS

At the moment, researcher is in phase one, where need analysis is carried out. From the findings, there are four main concerns regarding human milk sharing which is in terms of shariah, health, nutrition and database as shown in Table 2 below:

Table 2: Human milk sharing concerns

CRITERIA	SHARIAH	HEALTH	NUTRITION	DATABASE
Donor	√	√	√	√
Recipient	√	√		√
Health officer	√	√	√	√
Legal officer	√			√

(Reference: Focus Group Discussion on 11 June 2018 at University of Technology Malaysia, Johor Bahru)

The discussions started with the health officer emphasizing the need of online shariah compliance milk sharing application as she received demands and a few suppliers for milk sharing. However, there is no proper system for this where it adheres and follows Islamic law. Informants also show good understanding the definition of milk mother as the mother who gives her milk to her non-biological child under 2 years at least 5 full breastfeeding.

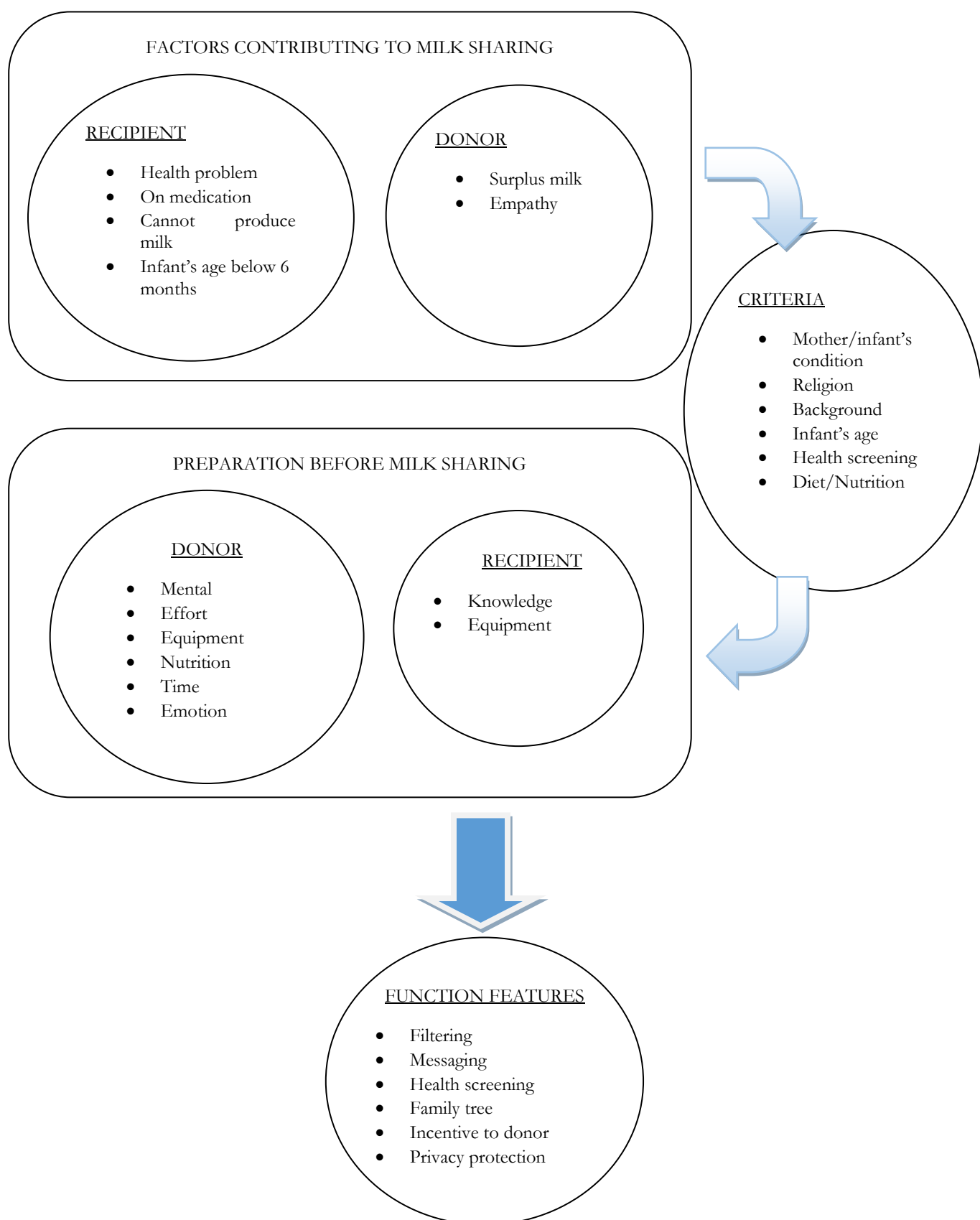


Figure 2: Framework of Online Shariah Compliance Milk Sharing Application

From the figure 2 above, factors that cause mothers to do milk sharing can be divided into 2 categories; donors and recipients. From a recipient perspective, the main factor to do milk sharing is due to the mother's health condition that prevent them to continue breastfeeding, for example stress or sick that prevent them to produce milk. Mothers who under medication also another factor that cause people do milk sharing. The infant that still small and depends only on milk, especially those who are under 6 months where they cannot consume additional food yet. Meanwhile, the donors choose to do milk sharing due to surplus milk and high empathy towards baby in need.

In terms of who and how they choose the infant or mother, a few criteria have been listed down. First and for most, the mothers will look into the mother's or infant's condition either these people really in need or else. Reason for busy and lazy are totally not acceptable. Then, they will see based on their religion, background lifestyle. Last but no least they will try to match based on their infant's age where health screening and diet intake is a plus.

Before involve in milk sharing activities, it is advisable that donors and recipients do some preparation as it need mental, emotion, time and effort from the donor to produce milk. it is hard to produce milk if the mother in under stress and emotionally unstable. It is also time consuming and require high discipline to express the milk especially regarding food intake. A good breast pump and suitable storage for expressed milk is necessary too. As for the recipient, it is better to have a well-understanding and knowledge of milk sharing activities such as the importance of milk sharing, health risk, correct milk-handling method and effect of milk sharing to *nasab* in Islamic law.

From the discussion, six functions will be introduced in the system. First is filtering where the users can filter based on their desired criteria. Then, messaging system for them to communicate and know each other better before do the milk sharing. Health screening to ensure the mother is qualified to donate the milk. Meanwhile, the family tree function is to help the users keep track their milk child and also act as a database for them to refer to when and if needed. In order to attract more users, especially milk donors to use this system, an incentive will be given to the donors wherever there is transaction of milk sharing takes place. One of the informants also states:

“For me if we can afford, it is not wrong to give payment in recognition of the efforts and sacrifices of the mother as it's take a lot of effort for the mother to prepare even 2 or 3 extra bottles for other's children. Then, isn't it feel good if we can give honorarium to them as a token of appreciation?”

Lastly, privacy protection where user's sensitive data will not be exposed to others such as sickness or any conditions that disallowed them to donate the milk.

5.0 DISCUSSION

From the findings, researchers come out with a framework and features for milk sharing online web application that complies with shariah laws managing human milk transactions.

5.1 Features

This online shariah compliance milk sharing application has several features as follow:

1. Easily accessible online.

2. Meet the current needs, especially the infants who need human milk immediately.
3. Based on the milk mother concept in Islam as mentioned in the Qur'an and Hadith.
4. Storing data of human milk donors and recipients in a database.
5. Create a link of family tree of the donor to all her milk children to keep track and avoid confusion regarding mixed lineage.
6. Comply with shariah law and get approval by JAKIM.
7. Supported by Ministry of Health Malaysia.
8. Donors have the opportunity to receive incentives as a tribute to their human milk sharing. The recipient will have to pay a registration fee to cover system management and incentive payment to the donor.

5.2 Approach

This system becomes an intermediary medium for connecting human milk donors and recipients. Donors need to enrol in the system. After account registration, users need to complete personal information and health screening to qualify them to become human milk donors. For recipients, they also need to register and open the account and complete the information about the infant, his family's details and the purpose of human milk application. Donors and recipients may set the desired criteria or characteristics such as location, gender, religion, race, number of siblings, family backgrounds and others. Then, it will match the criteria chosen by the recipient or donor.

The system has messaging feature for communication and to allow them to know each other better and to avoid fraud. However, it does not manage the storage and delivery of expressed milk. Therefore, donors and recipients need to get acquainted with each other and preferably meet before do the milk sharing. The system will also store the data of human milk sharing activity once it is done. If a donor has donated milk to more than one recipient, then each recipient will also have a milk sibling relationship. The system will store these data to ensure no future mixing of the lineage. It will help the milk mother keep track her milk children and allow them to access the data any time when needed.

Besides providing a 'Family Tree' that connects between donors and all of their milk recipients, this system also provides guidelines regarding shariah law and a good milk handling as well as the implications of human milk sharing. Once the donors and recipients agreed and done the milk sharing, both parties will make a report in the system. Then, the system will give incentives to the donor through bank transfer. Its main reason is to encourage mothers to donate their surplus milk to infants in need. Users also can give a star rating and leave comments or references for donors or recipients. Hence, other users may refer to the comments before approaching them.

6.0 CONCLUSION

Although people at norm prefer to do milk sharing with people they familiar and know, they do not averse to use online milk sharing application if the system comply to shariah law and

concern on health screening for safety risk. The framework for milk sharing online web application that complies with shariah laws featuring storing donors and recipients data in the database, managing human milk transactions and connecting both parties in the form of 'Family Tree' to keep track and avoid confusion regarding mixed lineage.

Acknowledgement

We would like to thank the project leader; Dr Zilal binti Saari and members of the project entitled, "*Sistem Data Raya Bagi Perkongsian Susu Ibu Patuh Syariah*" funded by UTM Research University Grant (Vote No: R.J130000.7733.4J319). We would also like to thank to all academicians and researchers who have helped us in this study.

This research would not be able to achieve without a support from abc, xyz, 1.OMDIB.

List of Reference

- Abraham S. Fischler School of Education, Nova Southeastern University (2012). Mixed Methods.
- Al Nawawi, Abu Zakaria Yahya Bin Syarafz Adil Ahmad Abd Maujud & Ali Muhammad Muawwid (2003) Raudhah Al Tolibin, Vol. 6, Special eds., Lubnan; Dar Al Kutub.
- Al Kasani, 'ala al din Abu Bakar Bin Masud, Abd Razak Al Halbi (1998) Bada'i al sana'i fi Tartib al syara', Vol. 3, 2nd eds., Lubnan; Dar Al Arabi.
- Al Tirmizi dalam Al Mubarakfuri, Abu 'Ali Muhammad Abd Bin Abd Al Rahim, Raid b Sabri (ed) Tuhfah Al Ahwazi Syarh Jami' Al Tirmizi, Kitab A l Ridha bab Maja'a 'anna al Radha'ah la tuharrim illa fi al sighar dun al-haulain, no hadith 1152, 1, Amman; Bait al athar al daulah.
- Cadangan Pendermaan Susu Ibu Secara Tabung Susu atau Pembankan di Unit Intensif Neonatal (Neonatal Intensif Care-NICU) Pusat Perubatan Universiti Kebangsaan Malaysia (PPUKM) by Prof Dr Cheah Fook Choe, Pakar Paedatrik Neonatologi PPUKM in 76th Syariah Review Panel Meeting on 9 Febuari 2012.
- Chua Yan Piaw (2009). Statistik Penyelidikan Lanjutan: Buku 5. Kuala Lumpur: McGraw Hill.
- Creswell, J. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed). Upper Saddle River, NJ: Pearson Education.
- Dambra-Candelaria, Laura Marie (2017) Mother's Voices: The Lived Experience of The Human Milk Banking Association of North America Milk Donor. Theses Dissertation. Molloy College Barbara H. Hagan School of Nursing, 60 [http:// digitalcommons.molloy.edu/etd/60](http://digitalcommons.molloy.edu/etd/60)
- Department of Statistics Malaysia (2019). Malaysian Population. <https://www.dosm.gov.my>. Access on 8 July 2019.
- Faridah Idris (2014). Bank Susu Ibu dalam Susu Ibu Penjana Kelangsungan Keluarga. Johor: Penerbit UTM.
- Human Milk Banking Association of North America. Access at <https://www.hmbana.org/> on 30 July 2018.
- Jabatan Kemajuan Islam Malaysia (2015) Kompilasi Pandangan Hukum, Muzakarah Jawatankuasa Fatwa Majlis Kebangsaan bagi Hal Ehwal Ugama Islam Malaysia, cetakan 5, JAKIM, Putrajaya.
- Pekeliling Tranformasi Pentadbiran Awam (2017) Perlaksanaan Analitis Data Raya Sektor Awam (aDRSA) , 1, Unit Pemodenan Tadbiran dan Perancangan Pengurusan Malaysia (MAMPU) Jabatan Perdana Menteri, Putrajaya.

- Themalayonline 9 (3 April 2016) Kaut RM 5000 Sebulan, Wanita Jual 200 Botol Susu Badan. Access on 28 Januari 2018.
- Malaysian Communications and Multimedia Commission (2016). Communications and Multimedia Pocket Book of Statistics 2016th ed., Selangor: Malaysian Communications and Multimedia Commission.
- Malik Bin Anas, t.th, al mudawwarah al kubra, Vol. 2, Lubnan; Dar Al Kutub Al Ilmiyyah.
- Mothers' Milk Bank. Access at www.MothersMilk.org/ on 30 July 2018.
- Suraya Yusof (2006). Pembangunan Sistem Pangkalan Data Bagi Proses Penilaian Tender Di Dalam Industri Pembinaan. Master thesis. UTM.
- Talbot, T (1913). The Wet Nurse Problem. Boston. Medical and Surgical Journal (169) 760
- Wahbah Al Zuhaili (1997) Al Fiqh Al Islami wa Adillatuh, Jil 10, Cetakan 4, Beirut; Dar Al Fikr
- Zaydan, A. K. (1997). Mufassal fi Ahkam al-Mar'ah wa Bayt al-Muslim fi al-Syari'ah al-Islamiyyah. Bayrut: Mu'assasah ar-Risalah.
- Zilal Saari (2015). Model Garis Panduan Penyusuan Anak Angkat Menurut Perspektif Fiqh dan Sains. Ph.D thesis. UTM