ETHICS OF HUMAN EMBRYONIC STEM CELL RESEARCH: THE PERCEPTION OF BUDDHIST, HINDU AND CATHOLIC REPRESENTATIVES IN MALAYSIA

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ABSTRACT

Human embryonic stem cell research (ESCR) raises ethical issues. Among the sources of embryonic stem cells are (i) embryos left from *in vitro fertilisation* (IVF) trials which are no longer needed for reproduction denoted as 'surplus embryos', and (ii) embryos intentionally created solely for research purposes from donated gametes via IVF, denoted as 'research embryos'. The process of extracting stem cells from these 4–5 day old embryos which are subsequently destroyed in the research raises ethical controversies.

Past studies on the ethics of ESCR largely revolve around the moral status of embryo, which is secular in nature. However, in a multi-religious and multi-cultural country like Malaysia, the ethical discussions pertaining to ESCR have taken a different outlook given the diverse views within and among the various faiths. The Malaysian *Guidelines on Stem Cell Research and Therapy* (2009) is based on the Islamic ruling (*fatwa*). Accordingly, surplus embryos are allowed to be used in research, but the creation of embryos solely for research purposes is prohibited. This study acknowledges the absence of documented views from other main religions like Buddhism, Hinduism and Catholicism pertaining to ESCR in Malaysia. In addition, no previous study has collected multiple religious viewpoints on the use of surplus and research embryos in ESCR.

Hence, this study explores the ethical considerations of the religious leaders from the Buddhist, Hindu and Catholic traditions pertaining to ESCR in Malaysia, and their viewpoints on the use of surplus and research embryos. In this regard, the ethical standpoints of 11 religious leaders, comprising four Buddhist monks and leaders, four Hindu leaders and three Catholic priests were obtained via semi-structured, face-to-face

interviews. The ethical responses of these participants are presented in reflection of various sacred texts.

The main findings of this study is the emergence of three ethical concerns, denoted as themes, namely (i) sanctity of life, (ii) 'do no harm' and (ii) 'intention' of the research. Concerns on sanctity of life are directed at the religious notion of ensoulment and early consciousness, deliberating as to whether there is a sign of life in a 5-day old embryo. The precept 'do no harm' is closely related to the religious principle of *ahimsa* which prohibits hurting living entities. Finally, 'intention' of the research is viewed as a strong point among Buddhist and Hindu respondents to encourage ESCR. The findings indicate that generally, all Buddhist leaders approve the use of surplus and research embryos in ESCR except for one leader who disapproved the use of research embryos. The Hindu leaders cautiously support ESCR but it is limited to the use of surplus embryos. The Catholic leaders do not support any form of ESCR and strictly observe the inviolability of embryonic life.

While the ethical concerns of the Catholic respondents are in accordance with the standpoint of the Vatican, the Buddhist and the Hindu respondents have provided new insights on the subject, striking new frontiers in the ethics discussion.

ABSTRAK

Penyelidikan sel stem embrionik manusia (ESCR) menimbulkan isu-isu etika. Antara sumber sel stem embrionik adalah (i) embrio yang tinggal dari ujian persenyawaan in vitro (IVF) yang tidak lagi diperlukan untuk pembiakan dirujuk sebagai 'embrio lebihan', dan (ii) embrio yang sengaja diwujudkan semata-mata untuk tujuan penyelidikan daripada gamet yang didermakan melalui IVF dirujuk sebagai 'embrio penyelidikan'. Proses mengekstrak sel stem daripada embrio berusia 4-5 hari yang kemudiannya dimusnahkan dalam penyelidikan menimbulkan kontroversi etika.

Kajian lepas berkaitan etika ESCR sebahagian besarnya berkisar pada status moral embrio, yang bersifat sekular. Namun begitu, bagi sebuah negara berbilang agama dan budaya seperti Malaysia, perbincangan etika berkaitan dengan ESCR telah mengambil pandangan yang berbeza disebabkan adanya pelbagai pandangan dalam suatu agama dan antara pelbagai agama. Garis Panduan Penyelidikan Sel Stem dan Terapi Malysia (2009) adalah berdasarkan pada peraturan Islam (fatwa). Menurutnya, embrio lebihan dibenarkan untuk digunakan dalam penyelidikan, tetapi penciptaan embrio semata-mata untuk tujuan penyelidikan adalah dilarang. Kajian ini mengakui ketiadaan pendokumenan pandangan daripada agama utama yang lain seperti tradisi Buddha, Hindu dan Katolik mengenai ESCR di Malaysia. Tambahan pula, tiada kajian sebelum ini yang telah mengumpul pelbagai pandangan agama terhadap penggunaan ‘lebihan’ dan ‘penyelidikan’ embrio dalam ESCR.

Kajian ini meninjau pertimbangan etika pemimpin agama dari tradisi Buddha, Hindu dan Katolik mengenai ESCR di Malaysia, dan pandangan mereka mengenai penggunaan

‘lebihan’ dan ‘penyelidikan’ embrio. Dalam hal ini, sudut pandangan etika daripada 11 pemimpin agama yang terdiri daripada empat sami Buddha dan pemimpin, empat pemimpin Hindu dan tiga imam Katolik diperolehi melalui temubual separa berstruktur dan bersemuka. Maklum balas etika peserta ini diberikan mengikut refleksi pelbagai kitab suci.

Dapatan utama kajian ini adalah kemunculan tiga etika pertimbangan daripada data, dirujuk sebagai tema, iaitu (i) kesucian hidup, (ii) 'tidak membahayakan' dan (ii) 'niat' kajian. Pertimbangan terhadap kesucian hidup ditujukan kepada pandangan agama tentang peniupan roh, dan kesedaran awal, dalam membincangkan sama ada terdapat tanda-tanda kehidupan dalam embrio berusia 5 hari. Falsafah 'tidak membahayakan' adalah berkait rapat dengan prinsip agama *ahimsa* yang melarang mencederakan entiti hidup. Akhir sekali, 'niat' penyelidikan itu dilihat sebagai poin kuat di kalangan responden Buddha dan Hindu untuk menggalakkan ESCR. Dapatan kajian menunjukkan bahawa secara umumnya, semua pemimpin Buddha membenarkan penggunaan embrio ‘lebihan’ dan ‘penyelidikan’ dalam ESCR kecuali seorang pemimpin yang tidak membenarkan penggunaan embrio penyelidikan. Para pemimpin Hindu berwasapada dalam menyokong ESCR tetapi ia adalah terhad kepada penggunaan lebihan embrio. Para pemimpin Katolik tidak membenarkan mana-mana bentuk ESCR dan menegaskan kehidupan embrio tidak boleh dicabuli.

Pertimbangan etika daripada responden Katolik adalah selaras dengan pendirian ‘Vatican’, sementara responden Buddha dan Hindu telah memberikan pandangan baru tentang subjek ini, yang menawarkan sempadan baru dalam perbincangan etika.

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LIST OF ABBREVIATIONS

AS cell	adult stem cell
BAC	Bioethics Advisory Committee (Singapore)
BioTechCorp	Bitechnology Corporation (Malaysia)
CRC	Clinical Research Centre
EG cell	embryonic germ cell
ES cell	embryonic stem cell
ESCR	embryonic stem cell research
hES	human embryonic stem
hESC	human embryonic stem cell
IBC	International Bioethics Committee
ICM	inner cell mass
IMR	Institute for Medical Research (Malaysia)
iPS cell	induced pluripotent stem cell
IVF	*in vitro* fertilisation
JAKIM	Department of Islamic Development (Malaysia)
LPPKN	National Population and Family Development Board (Malaysia)
MABIC	Malaysian Biotechnology Information Centre
MAJODI	Malacca-Johor Diocese (Catholic Diocese of Malaysia)
MCCBCHST	Malaysian Consultative Council of Buddhism, Christianity, Hinduism, Sikhism and Taoism
MHS	Malaysia Hindu Sangam
MOH	Ministry of Health (Malaysia)
MOSTI	Ministry of Science, Technology and Innovation (Malaysia)
NBAC	National Bioethics Advisory Commission (United States)
NBP	National Biotechnology Policy (Malaysia)
NSCRES	National Stem Cell Research and Ethics Sub-Committee (Malaysia)
NCESRT	National Committee on Ethics of Stem Cell Research and Therapy (Malaysia)
SCNT	Somatic Cell Nuclear Transfer
UNESCO	United Nations Educational, Scientific and Cultural Organisation

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Legend has it in ancient Greek mythology that Prometheus who was chained to a rock had his liver eaten by an eagle, but his liver grew back every night only to be eaten by the eagle the following day. This ancient mythology relates to the property of liver to self-repair and to regenerate. This is exactly what scientists are working on in today's biotechnological era in the field of regenerative medicine. In regenerative medicine, stem cells are introduced into a person's body to differentiate into specific tissue to repair or replace damaged tissue. Scientists conduct extensive research to investigate how stem cells can be used in the treatment of diseases and to advance knowledge on how cells develop and repair itself.

Stem cells have the ability to continuously divide and differentiate into various other kinds of cells and tissues. Stem cells are different from other cell types, mainly because (1) they are unspecialised cells, capable of renewing themselves through cell division, and (2) they can be induced to give rise to specialised tissue or organs with special functions (United States National Institutes of Health, 2009). Given their unique regenerative capabilities, stem cells offer potentials to treat diseases.

Embryonic Stem Cell Research (ESCR), is an evolving area of research with numerous scientific breakthroughs taking place around the world. This study, however only, takes into consideration the ethical issues and developments up to January 2015. The researcher has strived to present the complexity and contentious issues surrounding ESCR, in the most comprehensible manner, as possible.

Throughout this study, Embryonic Stem Cell Research (ESCR) refers to the human embryonic stem cell (hESC) research, that is use of human embryos in stem cell research. Thus both terms are to be treated synonymously.

This study recognises that the words fertilisation and conception are being used interchangeably. Conception is taken as synonymous with fertilisation although fertilisation is a biological term and conception need not be (McCormick, 1991).

The word pre-embryo is used by some scholars to indicate the early embryonic stage prior to implantation. The term pre-embryo refers to the period from start of fertilisation until formation of primitive streak (Eisenberg & Schenker, 1997). Primitive streak marks the start of gastrulation, where the inner cell mass (ICM) is converted into the three germ layers – ectoderm, endoderm and mesoderm. The ectoderm gives rise to neural tube, the precursor to central nervous system. The term 'pre-embryo' is used to indicate the earliest stages of mammalian development which involves 'establishment of the non-embryonic trophoblast' (McCormick, 1991). According to the definition in the *Encyclopaedia of Bioethics*:

> The pre-embryo comes into existence with the first cell division, and lasts until the appearance of a single primitive steak, which is the first sign of organ differentiation occurring [around] 14 days of development, after which the word embryo can be applied (Reich, 1995, p.847)

However, according to Doerflinger (2002), the term pre-embryo has been dropped from recent textbooks as many feel that the term serves more political purpose. The term 'pre-embryo', referring to embryo prior to implantation never gained general acceptance, as opponents of embryo research sees it as an attempt to deny that embryo exist from moment of fertilisation (Sagan & Singer, 2007).

In this study, wherever possible, the word embryo is used to refer to the five-day old 'pre-embryo' or 'early embryo'. In medical parlance, an embryo refers to an organism in early stages of growth and differentiation from time of fertilisation up to 90 days. Throughout this study, the term 'blastocyst' refers to a 4-5 day old embryo

formed prior to implantation, made up of about 150 cells, consisting of a hollow mass of undifferentiated stem cells.

1.2 Background of the study

This chapter provides an overview of the study. It begins by setting out the context of the study. This is followed by the statement of problem, objectives and research questions which this study wishes to address. Significance of the study is discussed and the research methodology is briefly described. This is followed by an introduction on stem cell research. The science of stem cells and world policies associated to embryonic stem cell research (ESCR) are discussed. An outline of the study is provided at the end of this chapter.

The potential for research on human embryonic stem cell (hESC) has created new frontiers in biomedicine like never before. Such cells have been found to be able to replace damaged body cells and tissues and have offered breakthroughs and innovation in the medical enterprise. Embryonic stem cells are said to provide treatment for debilitating diseases such as Parkinson's disease (Kim et al., 2002; Freed et al., 2001), Alzheimer (Abe et al., 2003; Wichterle, Lieberam, Porter, & Jessell, 2002), and type 1 diabetes (Street et al., 2004). In addition to that, embryonic stem cells can be used to treat other health conditions such as spinal cord injury, cancer, and juvenile-onset diabetes (United States National Institutes of Health, 2009). Other than leading to development of therapies for many diseases and illness affecting millions of people all over the world, stem cell research also provides a host of knowledge and clearer understanding of human organism.

However, ethical questions[1] are inevitably raised. Theologians and religious scholars are actively debating the ethical issues pertaining to the use of human embryos in research in which the embryos are inevitably destroyed. The ethical conflict exists between the nature of ESCR which results in the destruction of human embryos and the enormous possibilities of the research in offering treatments for various diseases (Mc Laren, 2001).

The controversies arise because the process of extracting stem cells from blastocyst eventually leads to its destruction (de Wert & Mummery, 2003; Lo & Parham, 2009). The objection to ESCR is due to the fact that the research deprives the embryo's potential to develop into a human being (United States National Research Council Report, 2001).

The extraction of stem cells from embryos elicit ethical dilemma among proponents of life, who believe that life begins from the moment of conception. Hence, ESCR is said to violate the principle that prohibits destruction of life (United States National Research Council Report, 2001, p.44). A five day old embryo is a nascent life and warrants the same moral status, and protection, as that accorded to a human person. Based on this, proponents of life object to ESCR. However, Nickel (2008, p. 70) points out that those opponents of ESCR claiming that human embryos have the same moral standing with human persons, are basing it upon religious convictions.

On the other hand, supporters of the developmental view believe that moral status increases gradually with stages of human development, and that the moral status of embryos increases gradually as they grow *in utereo*. Thus, this may be taken to mean that a five day old embryo which comprises a mass of cells, lacks moral status. There is another argument along the same line, that the embryo in the petri dish cannot be accorded the same moral status as the one implanted in a woman's womb.

[1] See Chapter 2 for a detailed discussion on ethical issues surrounding ESCR.

Referring to the biological development of an embryo, twinning at a later embryonic stage, has been used to suggest that embryos presumably lack the individuation. The nature of embryo and possibility of twinning has been forwarded to reject the view that the embryo has a future value, and therefore the moral objection towards hESC research is not compelling (Marquis, 2007, p.65).

Biologically, it has been argued that the moral concern of harming the embryo does not arise because a five day old embryo has not developed the primitive streak as a precondition for a developing conscious being. The five-day old embryo has not developed a nervous system and thus it cannot sense pain.

Miller (2008, pp. 153-154) recognises the two major societal disagreements for ESCR. The first one is the degree of respect due for a blastocyst and whether it can be destroyed in research for therapeutic purposes. The second disagreement is that some believe the use of 'non-embryonic' stem cells such as the adult stem cells will put an end to the ethical dilemma of employing embryonic stem cells for research. This was also popularised by notable proponents of life, among others, Kass, the strong voice in the United States President's Council on Bioethics, whose opinion was solicited on matters concerning ESCR by the then President Bush. Realising the pluripotency of stem cells for medical research, Kass led the council to survey and discuss alternative sources of human pluripotent stem cells without having to destroy human embryos in the process. A pluripotent cell may differentiate into all types of cells and tissues and into derivatives of the three germ layers ectoderm, mesoderm, and endoderm. In his report to the *Washington Post* on "A way forward on stem cells', Kass was hopeful that a technological solution will soon put to an end to the ethical dilemma concerning the destruction of human embryos for stem cell research (Kass, 2005).

This study examines the ethics of utilising human embryos, created via *in vitro* fertilisation (IVF) namely (i) excess or leftover embryos from infertility treatments

denoted as ‘surplus embryos’, and (ii) embryos created specifically for research purposes or what is termed as ‘research embryos’. The use of surplus embryos is expected to carry a different and perhaps, ‘lighter’ moral connotation than the use of research embryos because surplus embryos are not intentionally created but readily available for use from the infertility treatments whereas research embryos are created by the scientists to embark on research. The creation of research embryos may go against the principle of respect for the dignity of human beings. Scholars argue that while using research embryos is regarded as unethical, the use of surplus embryos is deemed ethically acceptable because this demonstrates that proper respect is given to these entities by using them for good reasons, rather than discarding them and letting them go to waste. The United States National Bioethics Advisory Commission (USNBAC) also states that, research which inevitably involves the destruction of surplus embryos, is acceptable as it may develop cures for life-threatening or severely debilitating diseases (NBAC, 1999).

As for respecting human embryos, the argument is that rather than letting the embryos go to waste, using them to save lives, is a way of treating the embryos with respect. Thus, to use surplus embryos instead of discarding it, for research that has the potential to benefit lives of human beings are encouraged (Manninen, 2007, p. 100). In fact, respect for surplus embryos is manifested by using them in research which gives their existence a [positive] impact on the world (Manninen, 2007, p. 101).

Scholars also examine whether utilising surplus embryos for research shows a lack of respect to the embryos, and also whether using research embryos generates more ethical constraints than using existing surplus embryos (Hug, 2005). Noting that the embryonic stem cells can be derived from surplus embryos from infertility treatments, or derived from research embryos created solely for research purposes via IVF,

Steinbock (2000) argues that there is no moral difference between utilising surplus embryos and research embryos for stem cell research.

The important controversy highlighted here is the fundamental issue and focus point of this study, which is whether it is morally wrong to create an embryo for research purposes which inevitably destroyed in the process, with no intention to create babies. The 'discarded-created distinction' has been forwarded stating that there is a moral difference between doing research on surplus embryos originally created for reproduction purpose, with the research embryos created with the intention of only using them for research (Parens, 2001). The latter however raises more ethical controversies.

Precisely, the ethical considerations on ESCR rely on the source of embryos used. A report in the United States recognises that while one viewpoint would allow the use of existing embryonic stem cell lines but prevent further derivation of embryonic stem cell lines, another would permit the use of surplus embryos in research, and still another viewpoint that permit the use of stem cells derived from research embryos created specifically for research from eggs and sperms donated by donors (United States National Research Council Report, 2001). Accordingly, each of this poses its own ethical dilemma. The moral justifications surrounding the advances in biomedical research which include:- healing the sick, aiding the suffering, love of knowledge, obligation to heal the sick, and the medical promises in understanding human diseases and offering potential treatments - are among the key points highlighted in a report by the United States President's Council on Bioethics (2002, Ch. 6).

In a multi-religious and multi-cultural country like Malaysia, ethical discussions pertaining to the morality of ESCR has taken a different outlook given the diverse views within and among the religious traditions. The morality of ESCR varies considerably according to religious interpretations on moral status of human embryo. The matter on

the use embryos was referred to the decision of the Malaysian Fatwa Council dated 22nd February 2005, during its 67th sitting (Department of Islamic Development Malaysia, 2005). Accordingly, frozen surplus embryos from IVF trials may be used for research if parents consent; however, the creation of human embryos solely for research is prohibited (refer Appendix A and B). Apart from Islamic views, the input from other main religions in Malaysia is yet to be documented.

Hence, this study intends to explore the ethics of ESCR in Malaysia from the perspectives of Buddhist, Hindu and Catholic leaders and their ethical reasoning in regards to use of surplus and research embryos.

1.3 Statement of Problem

Most of the views in the Western literature pertaining to ethics of embryo research, which are secular in nature, are not applicable to Malaysia, a country with multi-religious and multi-cultural setting. The current ethical discussions are framed within the context of the West. Views debated in Western literature on ethics of embryonic stem cell research revolve around moral status, personhood and potentiality of embryo[2]. This study attempts to study the ethics of ESCR according to the religious perspectives of the major religions in Malaysia. Two domains of inquiry or values from the vantage point of (I) sanctity of life, and (II) research is a knowledge-seeking endeavour, have been identified from the literature (reviewed in Chapter 2), as a guideline and starting point of the investigation.

Noting the diversity of views in a pluralistic society in Singapore, Elliott, Ho, and Lim (2010) stated that something that is deemed ethical in one place may not be

[2] More reviews in Chapter 2.

deemed ethical in a different cultural and religious context. Likewise, Turner (2004) asserts that in a pluralistic society made up of multicultural and multi-faith, there exists varying interpretations of what constitutes ethical practice. Religions have become the integral part to ethical debates, giving rise to distinctive deliberations pertaining to medical advancements such as ESCR. The UNESCO's report issued by the International Bioethics Committee in 2001 on *The Use of Embryonic Stem Cells in Therapeutic Research* recognises the diverse opinions reflecting pluralism on matters concerning ESCR, and the various solutions adopted by different nations. This is where ethical debate facilitating the resolution at national and international level is paramount (UNESCO IBC, 2001).

The world renowned Hindu monk, Swami Vivekananda (1863-1902) has said that 'the voice of Asia is the voice of religion'. Akabayashi, Kodama and Slingsby (2010) have stated that Asia which comprises the largest number of countries, cultures, and religious traditions, is the birthplace of most of the world's religious traditions; Hinduism is the oldest of several religions that originated in South Asia, and Buddhism emerged in the 6th century. The Abrahamic traditions which are Judaism, Christianity and Islam originated in Southwest Asia. This diversity results in a spectrum of values and religion continues to influence the ethics system of the countries (Akabayashi et al., 2010, p. 1-3). Malaysia, being an Asian country, has a different demography and cultural environment as compared to the West. Based on the last census in 2010, the population in Malaysia is made up of 61.3% Muslims, 19.8% Buddhists, 9.2% Christians and 6.3% Hindus (Department of Statistics Malaysia, 2010). Islam is the official religion as enshrined in Article 3 of the Federal Constitution of Malaysia, but other religions are allowed to be practiced in harmony. As Malaysia is a nation of various culture and religions, whose citizens have a firm belief in God and/or a superior Power, and make references to the embodied sacred texts on issues concerning life and

death, how is the contentious issue concerning human embryos being inevitably destroyed in stem cell research addressed?

In Malaysia, scientists actively conduct research using human adult stem cells. However, in anticipation of the ethical issues that may arise should scientists advance into human embryonic stem cell research, the *2009 Guidelines For Stem Cell Research and Therapy* was prepared by Stem Cell Research and Ethics Subcommittee of National Stem Cell Committee in collaboration with the Obstetric & Gynaecological and Paediatric Services Unit of the Medical Services Development Section of the Ministry of Health Malaysia (MOH, 2009a). The matter on the use of surplus embryos was referred to the decision of the Malaysian Fatwa Council dated 22nd February 2005, during its 67th sitting (Department of Islamic Development Malaysia, 2005). Accordingly, frozen surplus embryos from IVF trials may be used for research if parents consent; however, the creation of human embryos solely for research by any means including Assisted Reproductive Technology or through Somatic Cell Nuclear Transfer (SCNT)[3] is prohibited (refer Appendix A and B). This is in line with the *fatwa* issued by three Islamic Fiqh (Jurisprudence) Councils in Jeddah, USA and Jordan (Nordin[4], 2011).

The 2009 *Malaysian Guidelines for Stem Cell Research and* Therapy was obviously influenced by the *fatwa* ruling. In the acknowledgement section of the Guidelines (p.70), the committee extended its gratitude to the Department of Islamic Advancement Malaysia (JAKIM), Islamic Medical Society of Malaysia, and Malaysia Consultative Council of Buddhism, Hinduism, Sikhism & Taoism (MCCBHST), and non-governmental organisations (NGOs) for their constructive comments on the formation of draft. The committee also thanked the participants of the Public Forum on Stem Cell Research in Ampang Hospital in October 2008 for their valuable input and

[3] See Section 1.9.2 for the scientific aspect of SCNT, a cloning technique.
[4] It is worth mentioning that Dr Musa Nordin is a medical practitioner by profession, and also the former President of the Islamic Medical Association of Malaysia, whose views are consulted by the local *fatwa* committee pertaining to medical ethics.

feedback (MOH, 2009a). However, the report does not offer any insight to the views and input gathered from the religious representatives. The guidelines did not state which are the NGOs involved in drafting the guidelines. Furthermore, there were no references made in regards to the perspectives of these religious groups. The Malaysian guideline has only made reference to the *fatwa* ruling. As such, the absence of documented views from these major religions in Malaysia, needs to be acknowledged, at this juncture. The differences and commonalities of views among the faiths need to be solicited. Thus, this study seeks to explore the religious perspectives and standpoints pertaining to ethics of stem cell research.

Apart from Islamic views, the input from other main religions in Malaysia is yet to be documented. Acknowledging this gap, I believe that this study on ethics of ESCR from the perspectives of Buddhist, Hindu and Catholic (representing the major denomination of Christianity) leaders, will be able to contribute towards knowledge building. In Malaysia, religions play a major role in influencing the ethical guidelines for scientific research. Hence, it is important that a comprehensive study is carried out to study the ethical considerations that stem from the main religions in a multi-faith country like Malaysia.

In the past, evolving medical issues such as abortion, and organ transplantation, have been scrutinised by religious councils in Malaysia. For example, in 2011, the Ministry of Health collaborating with the Department of Islamic Development Malaysia (JAKIM) released a report deliberating on *Organ Transplantation from the Islamic perspective* (MOH, 2011). Issues like abortion and cloning are also widely discussed by religious representatives in local seminars and workshops in hospitals[5].

That is why it is pertinent for this study to gather and study the ethical viewpoints of the various religious leaders from the Buddhist, Hindu and Catholic

[5] This information is confirmed during my ccorrespondences with respondents of this study. See Chapter 3 for details of respondents.

groups pertaining to ESCR in Malaysia. The study will also examine the fundamental arguments that arise from those religions in regards to ESCR. While the three religions have different belief systems, there exist common values and principles within the same faith and among various faiths; which will be examined in this study. This study also wishes to examine the standpoint of the religious leaders on Malaysia pertaining to ESCR with regards to the use of (i) surplus and (ii) research embryos.

The views debated in Western literature on ethics of ESCR revolve around moral status, personhood and potentiality of embryo. A different approach needs to be taken to study the ethical issues raised in a multi-religious nation like Malaysia with regards to embryo research. As such, it has become a necessity to study the ethical standpoints and religious perspectives on ESCR in Malaysia.

Thus, this study essentially presents on the ethics of ESCR representing the local flavor of Buddhist, Hindu and Catholic community. Since the Malaysian Muslims belonging to the Sunni-Shafie school of thought have already adopted a consensus on ESCR through the formulation of a national *fatwa*, the views of the local Islamic leaders are not gathered through active inquiry but rather through a review of literature comprising of both local and international publications.

1.4 Objectives of Study

The objectives of the study are:

(a) To explore the ethical considerations pertaining to Embryonic Stem Cell Research (ESCR) in Malaysia, specifically from the Buddhist, Hindu and Catholic perspectives.

(b) To investigate the ethical viewpoints of the Buddhist, Hindu and Catholic leaders with regards to the use of the two sources of human embryo - surplus embryos and intentionally created research embryos for ESCR in Malaysia.

(c) To examine the fundamental arguments and standpoints that arises from the Buddhist, Hindu and Catholic faiths pertaining to ESCR, with regards to obtaining consensus in Malaysia.

1.5 Research Questions

(a) What are the main values and moral principles that guide the decision-making process pertaining to ethics of ESCR in Malaysia?

(b) What are the similarities and differences within these religious perspectives (Buddhist, Hindu and Catholic)?

(c) What is the position taken by each religion? (Islam, Buddhist, Hindu, and Catholic faiths) on ESCR in Malaysia?

(d) What is the response of the religious leaders in recognising the value systems of various religions in Malaysia with regards to obtaining a consensus on ESCR?

(e) What are the possible recommendations that may be gathered from these religions pertaining to ESCR in Malaysia?

1.6 Significance of Study

This study which takes into account the various religious considerations on the use of embryos in stem cell research, is significant as it will be useful in terms of developing a comprehensive policy on ESCR in Malaysia in the near future. There is tremendous growth of activities related to stem cell research both in the public and private organisations like universities, hospitals and healthcare in recent years. Little is known about the religious standpoints of the local religious leaders in Malaysia as far as ESCR is concerned with regards to the use of (i) surplus and (ii) research embryos. Therefore, a study taking into account the various ethical and religious considerations pertaining to ESCR is pertinent at this point of time. This study is expected to give an insight into the matter.

In an article in a local daily in June 2012 titled "R&D: Improving well-being without compromising social values", the following was highlighted:

> In 2006, Malaysia became one of the earliest signatories to UNESCO's Universal Declaration on Bioethics and Human Rights…Despite already having the Medical Review & Ethics Committee (MREC) under the Ministry of Health…, there was no overall structure that can unify all the other issues of bioethical concerns in the past until the launch of the National Bioethics Council in May [2012] (*New Straits Times*, 2012).

As such, this study is timely with the launching of the National Bioethics Council in Malaysia in May 2012. The council aims to provide advice and resolve bioethical issues in the country, and promote ethics in science and technology as not to contradict the impact on human and moral values, with regards to environment, social, health, culture, laws, and religions (Ongkili, 2012). The council's general focus would be on technological applications such as stem cell, genetically modified organism, and

animal testing, in line with the Universal Declaration on Bioethics and Human Rights signed by Malaysia in 2006. The Declaration which was adopted at the 33rd session of the General Conference of United Nations Educational, Scientific, and Cultural Organisation (UNESCO) on 19th October 2005, is the first international legal, non-binding instrument which recognises the inter-relation between ethics and human rights, in search for global standards in biomedical practice (UNESCO, 2005). Article 19 of the Declaration spells out the need to establish an independent, multidisciplinary and pluralist ethics committee to assess relevant issues related to projects involving human beings, to provide advice on clinical settings, to formulate recommendations and guidelines, and to foster debate and public awareness in bioethics (UNESCO, 2005, p.10). Hence, the establishment of Malaysia's National Bioethics Council in May 2012 is in line with Article 19 of the aforementioned Declaration. The council comprises experts from various fields, policy makers, government agencies, and non-governmental organisations such as the interfaith council.

With that in mind, this study seeks to explore the religious considerations on ethics of ESCR, representing the Buddhists, Hindus and Catholics of a pluralistic society in Malaysia, in the hope that the findings of this study will enable the government to come up with a more comprehensive ethical framework on ESCR. By placing the findings of this study alongside with the Islamic *fatwa* on ESCR, it is hoped that the government will be able to facilitate regulation of research in the field of biotechnology in general, and in stem cell research in particular.

This is the first study which gives emphasis on gathering views from the non-Muslim section of the Malaysian population with regards to use of (i) surplus and (ii) research embryos in ESCR. My personal communications with the interviewees who are the religious authorities, confirmed that their views and positions on the utilisation of surplus and research embryos in ESCR have not been formally solicited.

This study also builds up on previous studies which largely concentrate on moral status of embryo. In addition, the research data gathered from the interviews led to the emergence of a new theme (as discussed in Chapter 4) - which has not been highlighted in the Western literature. Thus, this study opens new frontiers in bioethics discussion concerning stem cell research in a pluralistic society in light of religious beliefs as embodied in sacred texts.

Past studies on ESCR have mainly been through the lens of Western bioethics. It is hoped that this study which explores the perspectives of the religious leaders within a multi-faith society, will be beneficial to the international bioethics community by providing guidelines to neighbouring countries like Singapore, Thailand, Indonesia, India, and Philippines where there are a significant number of Buddhists, Hindus, or Catholics, in embarking on evolving biomedical technologies. In an editorial published in Asian Biomedicine in 2014, the editor expressed concern over the growing number of stem cell treatment centres and turning them into lucrative business across Asia in countries like Thailand, Malaysia, India, Philippines, China and Hong Kong. Thus, there is a need for the government and authorities to monitor the unethical practices (Editorial Asian Biomedicine, 2014). The fear over unethical practices reinforces the view that there is a need to study and monitor all matters related to ESCR. Therefore, ethical discourses on ESCR, is undoubtedly important to be explored at the present time.

1.7 Research Methodology

This is a qualitative study comprising face-to-face, semi-structured and in-depth interviews with the religious leaders from the Buddhist, Hindu and Catholic groups. The purpose of these interviews was to gather the ethical concerns of these leaders on ethics of ESCR in Malaysia.

Prior to the interviews, an extensive review of literature comprising journal articles, books, book chapters, religious texts, international reports, and newspaper articles was undertaken. This enabled the researcher to identify the underpinning issues surrounding ESCR and to derive the conceptual framework (in Chapter 2). The conceptual framework served as a guideline for the researcher to formulate the interview questions.

The respondents were identified through a 'purposive sampling'. A detailed account on the research methodology, sample size and profile of respondents, is discussed in Chapter 3. This researcher made arrangements with the respondents via email and telephone calls, either weeks or months in advance before the interviews. The respondents were also notified about the purpose of the interview and the background of the study through emails. The respondents signed the consent forms, and agreed to participate in this study. The interviews were conducted within Kuala Lumpur and Klang valley between May to December 2012. In semi-structured interviews, the questions only serve as a general guide, as the flow of the conversation with the respondents is not restricted.

The interviews, in English, were audio-recorded and transcribed verbatim. The interview transcripts were then analysed by the researcher, and themes were identified from the data, as discussed in Chapter 4.

1.8 Scope and Limitations of Study

(a) Scope

For the purpose of this study, I will only be concentrating on the two sources of embryos created via IVF, namely (i) surplus embryos and (ii) research embryos. This study primarily investigates the ethical concerns of creating and/or manipulating embryos for ESCR. This study also explores the ethical viewpoints of the local religious leaders with regards to the use of both the sources (i) and (ii) in ESCR.

This study does not intend to dwell on whether the embryos in Malaysia are imported or otherwise as national resources on this matter remain confidential and beyond reach.

No attempt was made to conduct a survey among the lay public because it would require a large sampling survey, and it is beyond the scope of this study to seek lay perspective. Moreover, public engagement on issues like ESCR is still in its infancy stage in Malaysia. This study exclusively intends to seek the perspectives of religious leaders in authority. The respondents participated in this study represent their respective religious community.

This study also did not seek the perspectives of the scientists or medical practitioners involved in stem cell research. My initial attempts to approach them showed that the medical practitioners are reluctant to discuss ESCR from the ethical or moral perspective. It is beyond the scope of this study to look into scientists' perspectives on ESCR in Malaysia given the constraints to engage with them in a bioethical discussion. Moreover, the aim of this study has always been to examine to what extent religions influence the practice of ESCR in Malaysia, and to examine the ethical standpoints of the religious leaders from the Buddhist, Hindu and Catholic traditions.

It is also beyond the scope of this study to:

(i) discuss the commercialisation of gametes in producing *in vitro* research embryos.

(ii) examine the ethical concerns regarding production of cloned embryos through SCNT technique (a cloning technique).

(iii) deliberate the metaphysical context of existence of life, as the main focus of this study remains in exploring the ethical perspectives of ESCR in a multi-faith setting in Malaysia.

(iv) discuss the pros and cons of non-embryonic stem cells such as adult stem cells and induced pluripotent stem (iPS) cells

(v) discuss the legal issues concerning ESCR in Malaysia

(vi) propose a framework for policies related to stem cell research

(b) Limitation(s)

This study focuses on the major religions in Malaysia (which are also among the major religions in the world). However, this study is only limited to Buddhism, Hinduism and Catholicism. Within Buddhism, the participants of this study are from Theravada school of thought, one of the major branches of Buddhism practiced in Malaysia. This study did not seek the perspectives of the religious leaders from other beliefs such as Sikhism and Taoism, as not to broaden the scope of this study.

Interviews were not conducted with the Muslim authorities as there is already a *fatwa* on the use of surplus embryos in stem cell research in Malaysia. However, both local and international works on Islamic ethics of ESCR were reviewed. This study only focuses on the two Islamic principles which are extensively cited in literature, (i) sanctity of life, and (ii) research is a knowledge-seeking endeavour. Other principles are not featured in this study as it is beyond the aim of this study to examine the Islamic

framework and the contribution of Islamic ethics on this matter. This study embarks on Islamic ruling (fatwa) but extends into local ethical deliberation to include the perspectives of Buddhist, Hindu and Catholic groups only.

This researcher acknowledges the existence of various denominations within Christianity, such as Roman Catholic, Methodist, Lutheran, Anglican and Presbyterian. However, my respondents are from the Catholic tradition only, being the major denomination, with a recognised and structured official authority in Malaysia. In 2010, Catholics surpassed one million, covering 3% of total population and 40% of the 2.2 million Christians in Malaysia (Herald, 2012).

This researcher has no access to the national records on the sources of embryos and how they are retrieved for ESCR – which is to be taken as a limitation.

The literature was on embryo research for the last three decades were explored, but the main focus was only on the literature after year 1998 (after the discovery of hESC), where a plethora of papers were published pertaining to this subject matter.

In qualitative study, the personal moral reasoning and prevailing attitudes of respondents might be unavoidably reflected. Respondents expressed their views and understanding of various sacred texts and holy books with regards to ESCR, but care was taken to exclude any personal moral reasoning.

It is hoped that despite these limits, this study could strike new grounds on the ethical discourse in Malaysia, specifically to the practice of ESCR.

1.9 Introduction to Stem Cell Research

A study on the ethics of ESCR has to look into the science of stem cell research (SCR), which is described in this section.

1.9.1 Sources of Stem Cells

Sources of stem cells include (i) adult stem (AS) cells, (ii) induced pluripotent stem (iPS) cells, (iii) embryonic stem (ES) cells and (iv) embryonic germ (EG) cells. As the name suggests, AS cells are derived from mature adult organism, iPS cells are adult stem cells that have been reprogrammed genetically, ES cells are harvested from the inner cell mass of pre-implantation embryo, and EG cells derived from primordial germ cells.

Adult stem (AS) cells are undifferentiated cells found throughout the body such as the brain, bone marrow, peripheral blood, skeletal muscle, mesenchymal cells, liver, pancreas, epithelial skin, and digestive system, among others. The role of adult stem cells is to multiply by cell division to repair the tissue where they originate from. Scientists refer to adult stem cells as somatic stem cells, referring to the cells of the body except sperm, egg and germ cells (United States National Institutes of Health, 2009). Scientists report that adult stem cells enter 'normal differentiation pathways' to generate specialised cell types of the tissue they reside. For instance, hematopoietic stem cells give rise to all types of blood; mesenchymal stem cells give rise to a variety of bone cells, cartilage cells and fat cells; whereas neural stem cells in the brain give rise to nerve cells; and epithelial stem cells in the lining of digestive tract give rise to absorptive cells and goblet cells (United States National Institutes of Health, 2009). Hematopoietic stem cells found in the bone marrow which is responsible for the formation of blood cells, is a good source of adult stem cells used in various clinical

treatments (Petersen et al., 1999; Lagasse et al., 2000). An important point is that unlike embryonic stem cells, AS cells generally only differentiate into the cells specific to their tissue of origin. However, recent findings have challenged this generalisation about adult stem cells limited differentiation (Clarke et al., 2000; Weissman, 2000). There are reports about adult stem cells plasticity to form specialised cells of other tissues (Wagers & Weissman, 2004). Plasticity refers to the ability of stem cells to mix with different cells. Since the process of harvesting adult stem cells does not involve destruction of embryos, ethical constraints do not arise.

On the other hand, induced pluripotent stem (iPS) cells are adult cells that have been genetically reprogrammed to an embryonic-stem cell state, and pluripotent in nature (Takahashi & Yamanaka, 2006). The first human iPS cells first reported in late 2007 (United States National Institutes of Health, 2009). In 2012, Shinya Yamanaka along with John Gurdon of Britain won the Nobel Prize for their discovery that mature adult cells in the body can be transformed back or reprogrammed into infant-state stem cells (AFP, 2012).

Embryonic stem (ES) cells, which is the focus of this study, are derived from embryos that develop from eggs which are fertilised *in vitro*. The fertilised egg divides and develops to form a blastocyst. The human embryonic stem (hES) cells are derived from a 4-5 day old blastocyst (embryo). The embryos are obtained from those donated from the left over infertility treatments. The blastocyst consists of trophoblast, blastocoels and inner cell mass. By transferring the inner cell mass of a blastocyst to a culture dish which allows the cells to divide, hES cells are cultured, which are pluripotent in nature. They can be differentiated into various cell types by scientists under ‘direct differentiation pathway’ (Wichterle, Lieberam, Porter, & Jessel, 2002).

Lastly, embryonic germ (EG) cells originate from the reproductive cells. They are derived from primordial germ cells found in a gonadal ridge (Donovan, 1998).

Human embryonic germ cells were first cultured in 1998 (Shamblott et al., 1998). They are isolated from the embryo or foetal tissue of 5-9 weeks old. The primordial germ cells are capable of differentiating into cells of multiple lineages (Donovan, 1998). The germ cells can develop into stem cells. However, the process involving destruction of embryonic or foetal tissue raises ethical constraints. Figure 1.1 shows how ES cells and EG cells are isolated respectively.

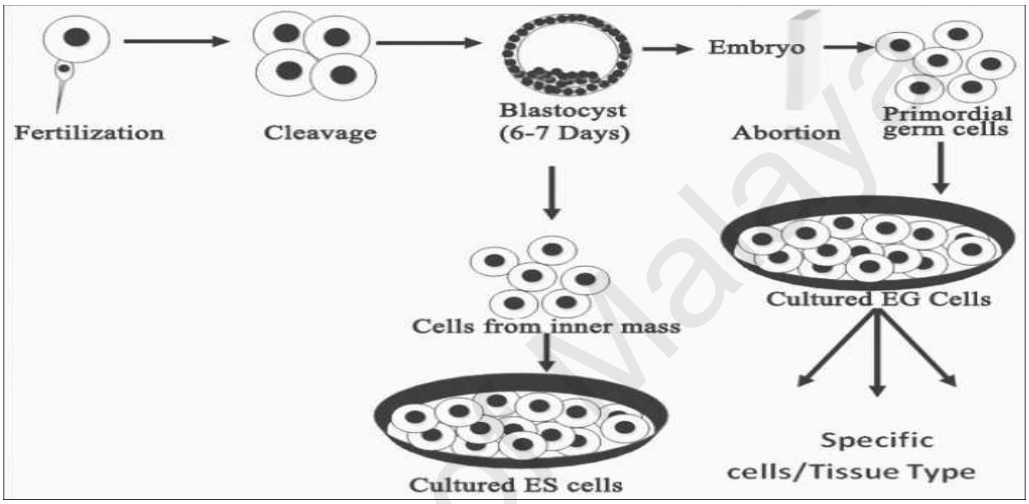

Figure 1.1: Isolation of embryonic stem (ES) cells and embryonic germ (EG) cells

Source:
http://www.jnsbm.org/viewimage.asp?img=JNatScBiolMed_2010_1_1_43_71674_u3.jpg
(Journal of Natural Science, Biology, and Medicine)

1.9.2 Sources of Human Embryonic Stem Cells

The discovery of human Embryonic Stem Cell (hESC) by the Wisconsin team in 1998 (Thomson et al., 1998) holds many promises in the medical frontier, especially in regenerative medicine. Human embryo is the developing stage between fertilisation until the eighth week of gestation, after which it is called foetus (United States National Institutes of Health, 2009).

The sources of human embryonic stem (hES) cells include:

(i) embryos created by *In Vitro Fertilisation* (IVF) for infertility treatments which are no longer needed, denoted as 'surplus' embryos (Dickens & Cook, 2007);

(ii) embryos created via IVF solely for research purpose (Lanzendorf et al., 2001), denoted as 'research' embryos; and

(iii) embryos produced from Somatic Cell Nuclear Transfer (SCNT) technique (Hochedlinger & Jaenisch, 2003)

This study focuses on source (i) and (ii) only.

First, we need to understand the acquisition of surplus embryos (also known as supernumerary embryos / spare embryos / excess embryos / superfluous embryos) for stem cell research. During infertility treatment, about seven to eight embryos will be produced in one cycle, whereby deformed embryos will be discarded, two or three will be transferred *in vivo* and the remaining will be cryopreserved (Dickens & Cook, 2007). The surplus embryos are obtained from the 'frozen-thawed' embryos (cryopreserved embryos) or 'fresh' embryos resulting from IVF cycles (Cohen et al., 2008).

There are special ethical concerns regarding the use of surplus fresh embryos. This includes the demographic and medical characteristics associated with a couple's decision to donate surplus fresh embryos for research (Choudhary, Haimes, Herbert, Stojkovic, & Murdoch, 2004). Different countries have different legislation in allowing or restricting the use of fresh surplus embryos for stem cell research (Cohen et al., 2008). Likewise, there are also couples who oppose embryo freezing (cryopreservation) for cultural and religious reasons (Choudhary et al., 2004). The

availability of cryopreserved embryos for research has been reported in the United States (Hoffman et al., 2003), and Canada (Baylis, Beagan, Johnston, & Ram, 2003).

This study is only aimed at examining the ethical concerns of using surplus embryos for stem cell research as a whole. Couples who undergo IVF treatment would end up with surplus embryos which are no longer needed and they can either opt to discard the embryos, or donate to another couple or donate them for research purposes (Braverman et al., 2009). Consent needs to be obtained from couples who decide to donate the surplus embryos for research, and the donors should be informed of the nature of ES cell derivation (Braverman et al., 2009).

When research cannot be carried out on surplus embryos alone, embryos are then created via IVF from gametes donated by volunteers who have no reproductive intent. Human gametes that is, oocytes (egg cell) and sperms donated by anonymous donors are inseminated and cultured to form blastocyst, which is later extracted to produce human embryonic stem cell lines. These embryos created solely for stem cell research purposes are termed as research embryos.

Somatic cell nuclear transfer (SCNT) refers to the introduction of a nucleus from an adult donor cell into an enucleated oocyte (Wilmut et al., 2002). The cell will divide and develop. Stem cells are then extracted from the cells that develop into a blastocyst stage.

See Figure 1.2 on the isolation of stem cells through SCNT.

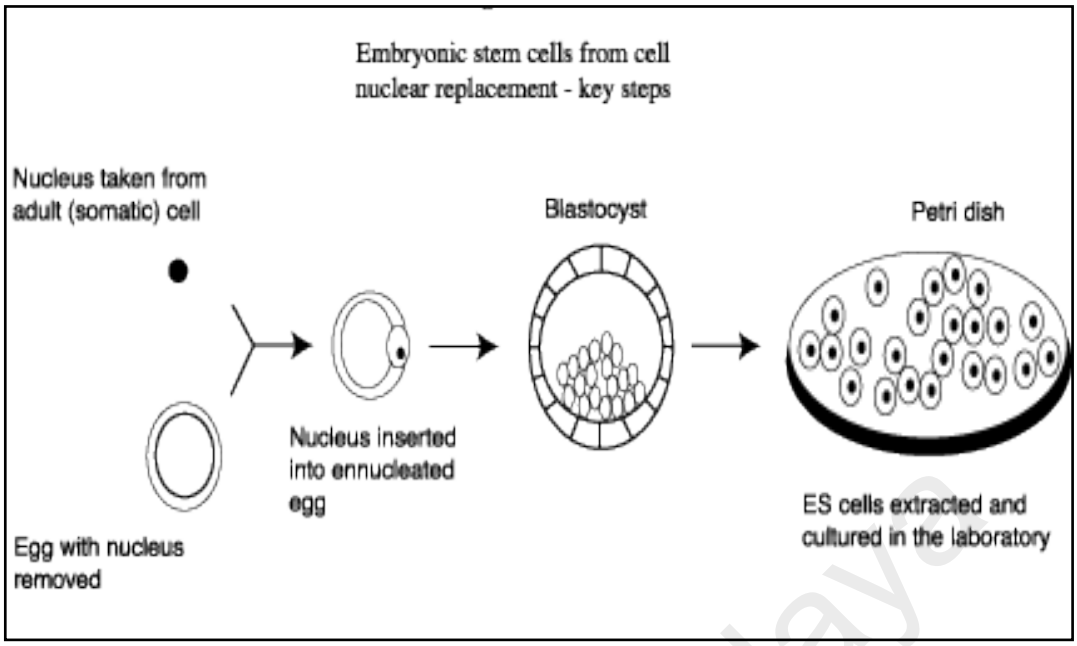

Figure 1.2: Isolation of stem cells through SCNT technique

Source:
http://webcache.googleusercontent.com/search?q=cache:http://www.publications.parliament.uk/pa/ld200102/ldselect/ldstem/83/8306.htm
(United Kingdom Parliament website)

The procedure often termed as therapeutic cloning is for the purpose of generating ES cells for treatment and therapies. The SCNT technique can create clone for both therapeutic and reproductive purposes. In reproductive cloning, the blastocyst will be implanted into the woman's uterus and it has the potential to grow. An example of SCNT employed for reproductive purpose is the cloning of Dolly, the sheep (Campbell, McWhir, Ritchie & Wilmut, 1996).

This study, however, only examines the ethics of utilising human embryos, created via *in vitro* fertilisation namely (i) 'surplus embryos', and (ii) 'research embryos'.

1.9.3 The Science of Stem Cells

This section which deals with the biology and nature of stem cells, explains how stem cells are isolated and cultured in the lab. This section also looks into their pluripotent nature, which is why human embryonic stem (hES) cells are able to differentiate to various types of cells and tissues.

Thomson (2001) explains the Science behind embryology. After fertilisation, the zygote divides several times and the cells (blastomeres) of this cleavage–stage are undifferentiated forming a compact ball of cells known as the *morula* consisting of 32-128 cells which are totipotent in nature. Then, the cells continue to proliferate to form a blastocyst (Fischbach & Fischbach, 2004). The first differentiation occurs around five days of development at blastocyst stage consisting of an outer layer of cells (trophoblast) separating from the inner cell mass (ICM). The ICM cells have the potential to form any cell type in the body but do not have the trophectoderm layer to form the extraembryonic tissue required for implantation in the wall of the uterus (Fischbach & Fischbach, 2004; Thomson, 2001). See Figure 1.3 on stages after fertilisation until formation of blastocyst, and Figure 1.4 on how stem cells are isolated.

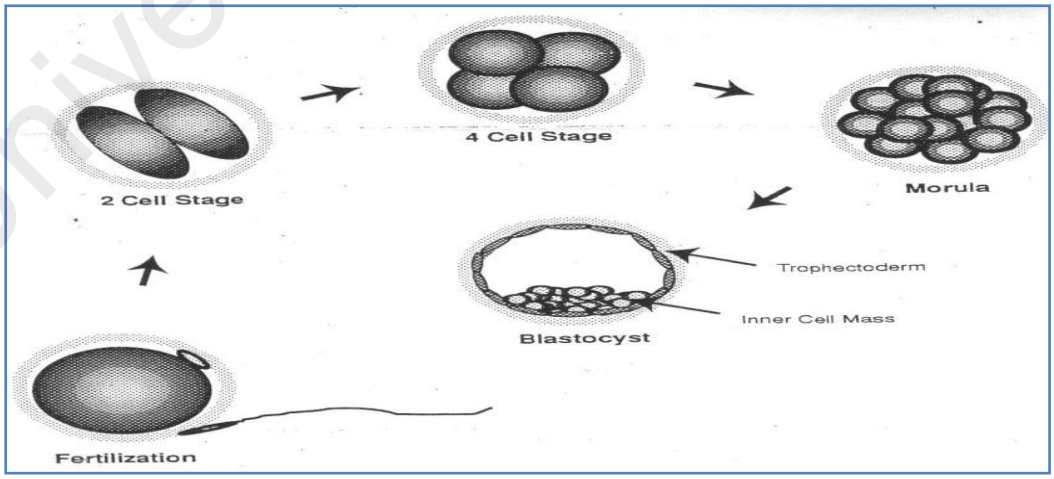

Figure 1.3: Stages after fertilisation until formation of blastocyst

Source: Thomson, J. A. (2001, p. 16). Human Embryonic Stem Cells. In S. Holland, K. Lebacqz & L. Zoloth (Eds.), *The Human Embryonic stem Cell Debate: Science, Ethics and Public Policy.* Massachusetts: MIT Press.

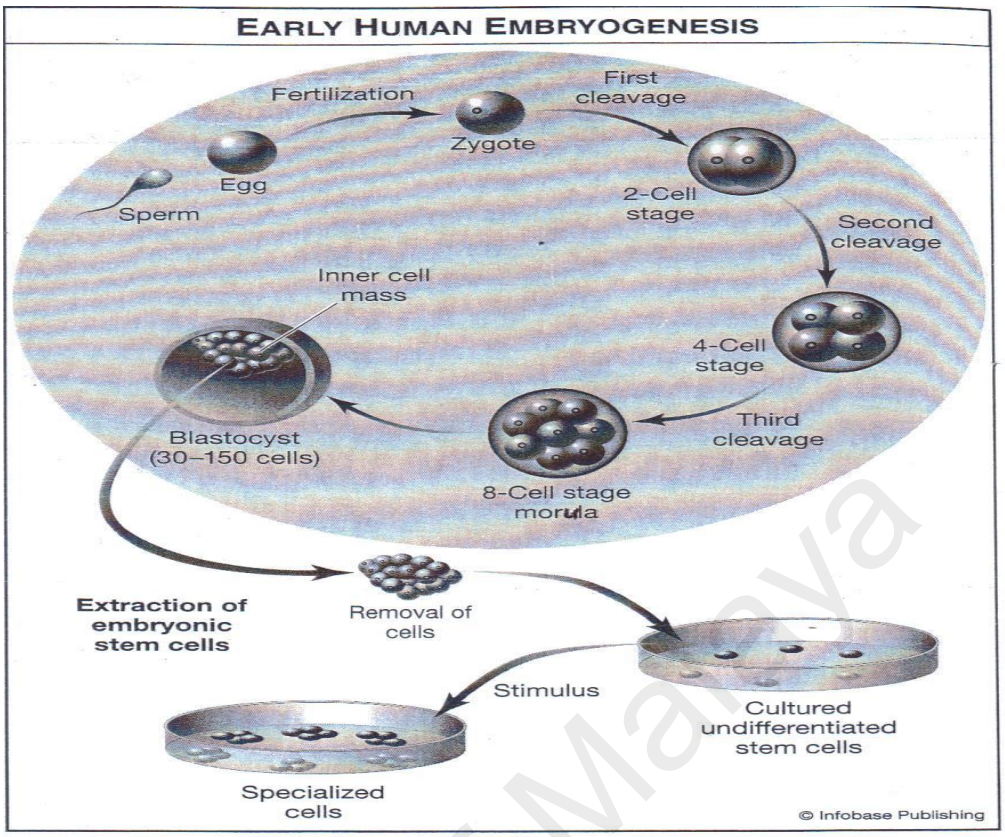

Figure 1.4: Early human embryogenesis and how stem cells are isolated

Source: Newton, D. E. (2007, p. 220). *Library in a Book: Stem Cell Research*. New York: Facts on File.

In the intact embryo, ICM cells function as 'precursor cells' (Thomson, 2001). It is important to take note that ICM forms prior to implantation (Fischbach & Fischbach, 2004). It is only when these ICM cells are isolated from its embryonic environment and cultured under laboratory conditions, ICM-derived cells can proliferate and self-renew to form any cell type (Thomson, 2001). These ICM-derived cells that we refer to as Embryonic Stem (ES) cells are pluripotent in nature whereby they can differentiate into any cell types in the human body other than the extraembryonic tissue required for formation of placenta, and therefore they cannot form a whole human being (Fischbach & Fischbach, 2004). See Figure 1.5 on how the inner cell mass of a blastocyst differentiates into various types of tissues.

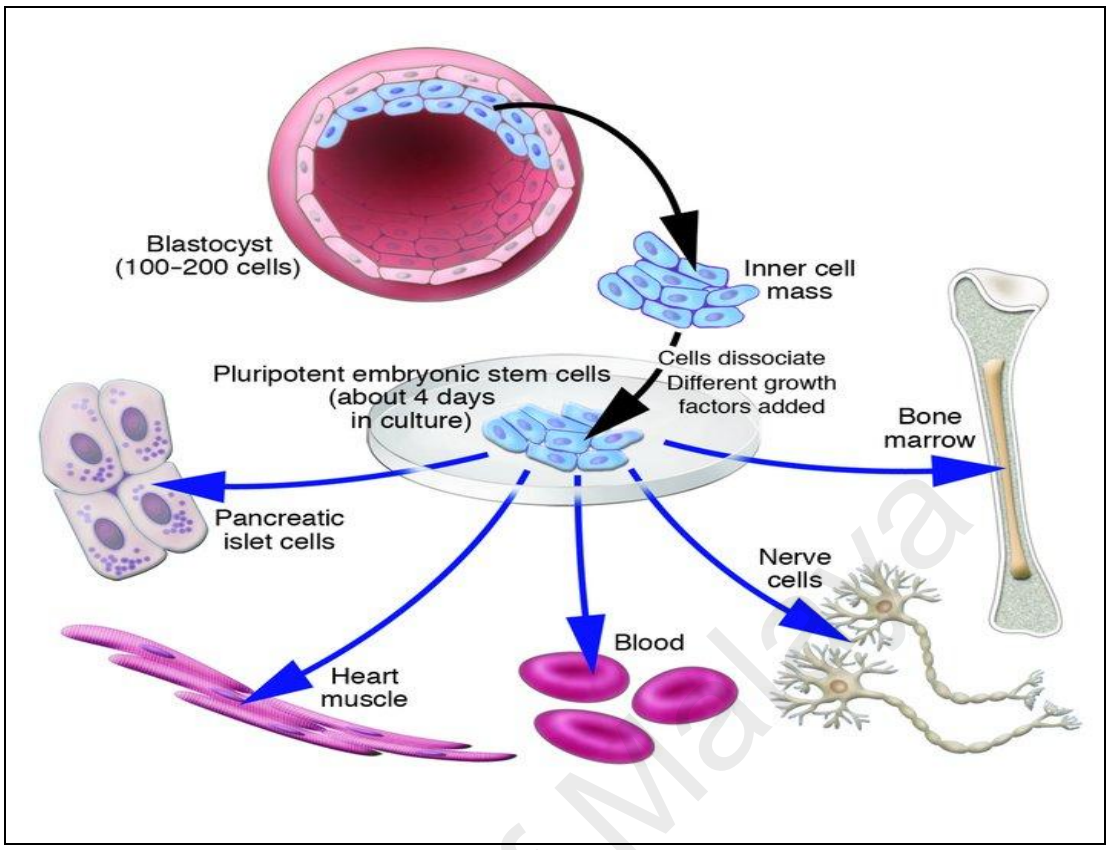

Figure 1.5: The inner cell mass of a blastocyst differentiates into various types of tissue

Source: https://www.jci.org/articles/view/23549/files/JCI0423549.f2/medium (Journal of Clinical Investigation)

Human embryonic stem (hES) cells, which are pluripotent, have the ability to differentiate into a variety of specialised cells and tissues (Conley, Young, Trounson & Mollard, 2004). Most stem cells can only form certain differentiated progeny cells, but embryonic stem cells (ESC) have the potential to differentiate into all types of cells and tissues in the body which gives them the pluripotency (Okarma, 2001).

The pluripotent capabilities and ability to proliferate or self-renew under laboratory conditions make hES cells the best source of stem cells for research. (Okarma, 2001). The hES cells are not embryos themselves, which means they cannot develop by themselves into a whole human (de Wert & Mummery, 2003; Okarma, 2001). Human embryonic stem (hES) cells are also immortal and malleable whereby

they are able to divide indefinitely and can be manipulated without losing their genetic structure and cell function (Holland, Lebacqz & Zoloth, 2001, *Introduction*, p. xviii).

The above mentioned properties explain why hES cells are preferred in comparison to the other sources of stem cells, which brings us to the core of this study, to study the ethical perspectives surrounding the use of human embryos to extract stem cells for research.

1.9.4 Stem Cell Research in Malaysia

The National Biotechnology Policy (NBP) launched by the then Prime Minister, Tun Abdullah Ahmad Badawi, in 2005 envisions biotechnology will be a leading economic engine of growth in Malaysia by the year 2020. The NBP is underpinned by nine thrusts, whereby Thrust 2 is related to healthcare biotechnology development. Malaysia is now in Phase II (2010-2015) of the NBP implementation (MABIC, 2015). Under Phase I (2005-2010) of NBP, the government has established BioTechCorp or Malaysian Biotechnology Corporation under the purview of Minsitry of Science, Technology and Innovation (MOSTI), and also provided various tax incentives to biotechnology companies which are accorded the BioNexus status (BioTechCorp, 2014).

According to a post in Asia Medical Tourism, the Malaysia health care system is a leader in stem cell procedures, with two major cord-blood banks having more than 80,000 clients, both local and international (MyMedHoliday, 2013). The blood from a newborn baby's umbilical cord is rich in stem cells. There are many affordable medical

centres and healthcare providers in Malaysia who are specialised in stem cell therapy and treatments (MyMedHoliday, 2014).

According to the report released by Academy of Sciences Malaysia (2013, p. 64), the companies offering stem cell therapy services are:

1. Nichi-Asia Centre for Stem Cells and Regenerative Medicine (NiSCELL), a Malaysian biotechnology company which has BioNexus status;
2. Stempeutics Research, which also has BioNexus status, and is part of Manipal Education & Medical Group;
3. Cytopeutics, which aims to bring stem cell treatment solutions to Malaysia and Asia Pacific;
4. CryoCord, the first in Southeast Asia to foray into isolation and processing of mesenchymal stem cells, and its facilities are ISO certified;
5. CellSafe International Group, with BioNexus status, which specialises in the preservation of cord blood stem cells;
6. Stem Life, the first stem cell banking and therapeutics company in Malaysia, which has BioNexus status and specialises in banking cord blood and peripheral blood stem cells;
7. EmCell, provides anti-ageing treatment with foetal stem cells; and
8. StemTech International, with BioNexus status, provides cord blood and adult stem cell banking, besides stem cell medical therapy

It was also reported that Stempeutics Research outperforms the universities in terms of productivity due to active collaboration and funding with the Ministry of Health (Academy of Sciences Malaysia, 2013, p. 13).

The report, however, does not state anything about the sources of embryos for stem cell research carried out by the companies in Malaysia.

Harun et al. (2006) confirms a much earlier engagement with hESC research, a collaboration between Stempeutics Research and scientists from Manipal Institute of Regenerative Medicine and Manipal Hospital in India. This is a multi-national project which involves the National Population and Family Development Board (LPPKN) under the purview of the Ministry of Women, Family and Community Development (Malaysia), the University of Sheffield (United Kingdom) and the Ferdowsi University of Mashhad (Iran). Another study by Stempeutics Research Malaysia with Manipal Institute of Regenerative Medicine and Manipal Hospital (India), was conducted on the propensity of hESC lines (Pal, Totey, Mamidi, Bhat, & Totey, 2009).

Among the many stem cell therapy providers in private medical centres in Malaysia are:

1. Gleneagles Medical Centre in Penang which offers stem cell therapies for blood disorders like leukemia, lymphoma, myeloma, sickle cell anemia and thalassaemia;
2. Kuala Lumpur Sports Medicine Centre which provides cartilage regeneration with peripheral mobilised stem cells;
3. Tropicana Medical Centre in Kuala Lumpur, collaborates with StemTech International to provide stem cell banking and therapy services;
4. Sime Darby Healthcare in Subang Jaya which offers bone marrow transplantation;
5. International Specialist Eye Centre which offers stem cell treatment for cornea deficiencies;
6. Penang Adventist Hospital which collaborates with Cytopeutics and Stempeutics to offer stem cells for intractable heart failure cases

(Academy of Sciences Malaysia, 2013, p. 65)

Again, it is to be noted that the report did not disclose information about the stem cell providers in the public hospitals.

The Institute for Medical Research (IMR) in Kuala Lumpur is the research arm of the Malaysian Ministry of Health. Stem cell transplants in Malaysia are usually carried out for patients suffering from leukemia and thalassaemia, and as of November 2013, more than 500 stem cell transplants have been carried out (Institute for Medical Research, 2013). Foong (2012a) reported that hESC lines were derived from surplus embryos from Metro IVF fertility clinic to establish the Malaysian stem cell line under the collaboration of IMR with a public hospital in Klang and Stempeutics Research.

Gan et al. (2008) reviewed about stem cell transplantations sourced from bone marrow, indicating collaboration between the major public and private hospitals which include University Malaya Medical Centre, Subang Jaya @ Sime Darby Medical Centre, National University Hospital, Ampang Hospital and Institute of Paediatrics in Kuala Lumpur.

Loke et al. (2010) reported that only haematopoietic stem cell therapy is established with a registry. Haematopoietic commonly refers to bone marrow. Other modalities of stem cell therapy considered experimental, and conducted under the aegis of National Stem Cell Research and Ethics Sub-Committee (NSCRES), adhere to *Malaysian Guidelines for Stem Cell Research and Therapy*, which requires therapeutic outcomes to be reported back to NSCRES. Hence, stem cell therapy providers from private sector collaborated with the Clinical Research Centre (CRC) of the Malaysian Ministry of Health (MOH) to set up the National Stem Cell Therapy Patient Registry. The purpose of the registry is to gather long-term data on the efficacy and adverse outcomes of stem cell therapy from other modalities (Loke et al., 2010).

On 29th and 30th October 2012, Malaysia held its first National Stem Cell Congress at Kuala Lumpur, a joint collaboration between the Ministry of Health (MOH)

and National University of Malaysia Medical Molecular Biology Institute. The National Committee on Ethics of Stem Cell Research and Therapy (NCESRT) under the purview of MOH acts as the review committee for research proposals. During the congress, it was reported that most of the stem cell research work has involved haematopoietic stem cells (bone marrow, peripheral blood, cord blood), and among the projects completed in the Institute for Medical Research (IMR) approved by the MOH are propagation, expansion and derivation of human embryonic stem cell (hESC) lines (MOH, 2012). The National Stem Cell Coordinating Centre set up in March 2014 has the database of all the registered donors whether peripheral blood, bone marrow or umbilical cord blood, and provides information about suitable donors to clinical transplant experts (Aruna, 2014). However, information on embryonic stem cells was not disclosed.

Other conferences and workshops on stem cell research carried out in the past in Malaysia include:- Adult Stem Cell Workshop in October 2003; 2nd National Tissue Engineering and Regenerative Medicine Scientific Meeting in 2008; Cell based Therapy Workshop in July 2008; Seminar on Advances in Stem Cell Therapy in December 2009; 3rd National Tissue Engineering and Regenerative Medicine Scientific Meeting in October 2010; and Annual International Conference on Stem Cell Research in April 2011 (Academy of Sciences Malaysia, 2013).

There are 110 researchers who are playing an active role in stem cell research from both the public and private institutions of higher learning, with the National University of Malaysia dominating the field, followed by Putra University Malaysia and University of Malaya (Academy of Sciences Malaysia, 2013). This was also confirmed in my personal communication with a medical officer from the National Population and Family Development Board (LPPKN) in May 2011, who stated that the National

University of Malaysia and University of Malaya are actively doing research on stem cells[6].

During the Stem Cell Research and Therapy Seminar at Ampang Hospital in August 2009, the then Minister of Health, Dato' Seri Dr. Liow Tiong Lai said that Malaysia is as advanced as other countries in this field, and RM32 million was allocated for over five years to develop stem cell and cord blood banking activities in the country (MOH, 2009b). The local sources which provide funding for stem cell research include the Ministry of Education providing grants for universities and institutes of higher learning, Malaysian Biotechnology Corporation, Ministry of Science, Technology and Innovation, and Malaysian Technology Development Corporation (Academy of Sciences Malaysia, 2013)

Research on stem cells in Malaysia is presently not covered by any legislation. Provision of stem cell therapy services by health providers is not restricted, but subjected to the regulations provided by the Private Healthcare Facilities and Services Act [1998, Act 586] (Academy of Sciences Malaysia, 2013).

However, the Ministry of Health came out with a set of guidelines in 2009 covering stem cell therapy called the Malaysian *Guidelines for Stem Cell Research and Therapy* (MOH, 2009a) (refer Appendix A). Issues like the use of surplus embryos are referred to the decision of the Malaysian Fatwa Council dated 22nd February 2005 on its 67th sitting (Department of Islamic Development Malaysia, 2005) (refer Appendix B). *Fatwas* are formulated by religious scholars and authorities in Islamic jurisprudence after a process of ethical reasoning. Accordingly, frozen surplus embryos from IVF trials may be allowed to be used for research if parents consent; however the creation of human embryos solely for research by any means including Assisted Reproductive Technology (i.e. IVF) or through Somatic Cell Nuclear Transfer (SCNT) is prohibited.

[6] Personal communication through e-mail with Dr. Rosliah Harun from LPPKN in May 2011.

To recap, in Malaysia, IVF trial attempts were first carried out in 1984 (Nor, 1999) followed by a live birth three years later in 1987. A private medical centre in Malaysia recently announced the birth of its 3000th IVF baby (Ong, 2012). It is the largest number attributed to a single medical centre in Malaysia (refer Appendix C), with a clinical pregnancy rate[7] of 62.1% of the total IVF trials performed in the year 2011 alone (TMC Fertility Centre, 2014). However, to the best of my knowledge, the national record on the fate of those surplus embryos produced in the IVF cycles nationwide is not available. The surplus embryos produced abundantly from the expanding use of IVF trials in Malaysia, would most probably end up in the trash if those embryos are not donated for ESCR.

This researcher faced difficulty in accessing the national records and statistics about the source of human embryos used in stem cell research and how they are retrieved for research. What we know from the websites of the private medical centres in Malaysia providing IVF trials is that while the best embryos are chosen for embryo transfer, the surplus good quality embryos are frozen for future use (Metro IVF, 2011; KL Fertility Centre, 2014; Sunfert IVF, 2013). It is for this reason that those IVF couples who no longer wish to freeze the surplus embryos may consider donating them for ESCR in Malaysia.

On that note, this study will be looking into the ethical perception of the local religious leaders pertaining to the utilisation of both the surplus and research embryos in ESCR.

[7] Clinical pregnancy rate is defined as a pregnancy where an ultrasound scan has shown at least one fetal heartbeat as defined in http://www.tmcfertility.com/our-success-rates.

1.9.5 Worldwide Policies on Embryonic Stem Cell Research

Many countries worldwide have reviewed policies on embryonic stem cell research.

Walters (2004, p. 3) identifies six policy options pertaining to ESCR adopted by nations around the world:

Option 1: No human embryo research is permitted

Option 2: Research permitted on existing hESC lines

Option 3: Research permitted on surplus embryos

Option 4: Research permitted on surplus embryos and research embryos created via IVF

Option 5: Research permitted on surplus embryos and research embryos created through SCNT

Option 6: Research permitted on surplus embryos and embryos created through transfer of human somatic cell into non-human animal eggs

The focus of this study is on Option 3 and 4.

First, let us review the policies in Europe and America. In the United States, the policy regarding ESCR is politically-driven and varies from state to state. It can be described as a 'patchwork of diverse policies at state level' with a unified policy on funding of ESCR at federal level (Walters, 2004). As announced by the then President Bush on August 9, 2001, federal funding is permitted for research using stem cells from existing stem cells lines, as identified by the National Institutes of Health, which are derived from surplus embryos prior to the announcement date (United States National Research Council Report, 2001). Thus, Walters (2004) has categorised that President

Bush's endorsed Option 2 from his list. The policies of individual states, however, seem to differ from one another, where some allow the use of surplus embryos and research embryos while a few states ban these, opening a broad approach between Option 2 to 6. The United States, thus, lacks coordinated national monitoring, oversight or regulatory system. Years later, President Obama's administration has taken a moderate position that allows research and funding on derivation of stem cells from surplus embryos which otherwise would be discarded, expanding hESC lines which are eligible for federal funding and improving oversight (Streiffer, 2009).

In contrast, Germany, restrictive in manner, completely prohibits derivation and use of embryonic stem cells for research. Centred on the *Embryo Protection Act of 1990*, any human intervention on human embryos is prohibited (Germany Federal Law Gazette, 1990). According to the act, those caught for improper use of human embryos which include developing embryos for any purpose other than pregnancy are liable for punishment. Under the *2002 Stem Cell Act*, the importation of embryonic stem (ES) cell lines into Germany is permitted under strict conditions, but the imported ES cell lines must be derived before the cut-off date of 1 January 2002 (EuroStemCell, 2012a). In his analysis, Walters (2004) stated that Germany adopts Option 2 from the six policy options, with a time limit, whereby it permits importation and use of existing human embryonic stem cell lines, which were derived outside Germany before 2002. Then, in 2008, the German parliament made amendments to the *Stem Cell Act*, to move the cut-off date for importation of human embryonic stem cell lines from 1st January 2002 to 1st May 2007 (EuroStemCell, 2012b).

It is interesting to note that the chosen point in Canadian law is not human embryo per se, but the benefits of human health and dignity, and considerations to protect the health of its citizens and to prevent commercial exploitation (United States President's Council on Bioethics, 2002). According to regulations under *Assisted*

Human Reproduction Act 2004, surplus embryos may be used for stem cell research, but producing *in vitro* research embryos is prohibited (Government of Canada, 2004). Thus, Walters recognises that Canada has formally endorsed Option 3 from his list.

United Kingdom has taken a permissive approach in allowing the derivation of stem cells from surplus embryos, and research embryos, created via IVF and SCNT, which are no older than fourteen days. Thus, Walters (2004), states that the United Kingdom adopts option 4 and 5. The *Human Fertilisation and Embryology Act 1990* under the Human Fertilisation and Embryology Authority (HFEA) - regulates infertility treatment, storage of gametes and embryos, and embryo research, for both public and private funded activities (HFEA, 2012). Research on human embryos is also outlined in the subsequent *Human Fertilisation and Embryology (Research Purposes) Regulation 2001*, whereby the use of embryos in stem cell research can be carried out subject to HFEA (EuroStemCell, 2012c). The broad research projects licensed by HFEA between 1st April 2012 until 31st March 2013, include development of human embryonic stem lines at the Centre for Stem Cell Biology and Section of Reproductive and Developmental Medicine; derivation of human embryonic stem cell lines from research embryos and abnormal surplus embryos at Manchester Fertility Services Ltd, St Mary's Hospital and University of Manchester; derivation of human embryonic stem cells at Roslin Cells Limited; and derivation of stem cells from surplus embryos at University of Cambridge (HFEA, 2013). The United Kingdom has a comprehensive regulatory framework for stem cell research (EuroStemCell, 2012c).

In Asia-Pacific, Walters (2004) recognises that Australia adopts Option 3, with a time limit, that research is only allowed on surplus embryos. Under the provisions of the revised Research Involving Human Embryos Act 2003, the offences are clearly outlined in Part 2, Division 1 on 'Regulations of the use of excess assisted reproductive

technology embryos, other embryos and human eggs' (Government of South Australia, 2012).

Among the Asian countries, China, has adopted a liberal policy, with India and Singapore moving to that direction. The Chinese government allows research on human embryos and cloning for therapeutic purposes. In December 2003, the *Ethical Guidelines for Research on Human Embryonic Stem Cells* was enacted by the Ministry of Science and Technology, and Ministry of Health of China. Accordingly, human reproductive cloning is prohibited, but stem cells can be derived from surplus embryos, germ cells, and research embryos created from somatic cell nuclear transfer (SNCT) technique (Chinese National Human Genome Centre, 2004; Liao, Li & Zhao, 2007). The dynamism of the country's policy was reviewed by Liao, Li and Zhao in 2007 who stated that China prohibits hybridising human germ cells with germ cell of other species. As such, I would safely say that China adopts Option 5, although Walters (2004) at the time he wrote his article, recognised China as adopting Option 6.

Another country in Asia, that is embodied by religious beliefs and values, which has also shown a significant interest in the field of stem cell research is India. In line with the new developments in stem cell research, in December 2013, the Indian Council of Medical Research (ICMR) under the Department of Health Research and Department of Biotechnology, revised its previous *Guidelines for Stem Cell Research and Therapy* issued in 2007, naming it in 2013 as *National Guidelines for Stem Cell Research*. The major difference is omitting the word 'therapy' from the title of the guidelines, as ICMR wishes to emphasise that stem cells are still not part of standard care, until its efficacy in therapy is proven. As such, the guidelines only cover stem cell research (Indian Council of Medical Research, 2013). This was also reported in the nation's leading daily, that any use of stem cells in patients will be considered research and not therapy, and it must be done under approved and monitored clinical trial to prevent

malpractice (*The Hindu*, 2014). According to the new guidelines, the permitted areas of research are *in vitro* studies on pluripotent stem cell lines, that is embryonic stem (ES) or induced pluripotent stem (iPS) cells and adult stem cells. The restricted areas of research include creation of a human zygote through IVF or SCNT or any other technique. However, the proposed research cannot be carried out with existing ES cell lines or those derived from surplus embryos. Research related to human germ line gene therapy and reproductive cloning is prohibited (Indian Council of Medical Research, 2013). Walters (2004) recognised that India has adopted Option 3 from his list. However, the same cannot be said about the new guidelines in 2013, as it appears that India is taking a cautious step in reviewing its policy.

Singapore, a multi-racial and multi-religious nation, is one of the countries in the Asian region which is intensively carrying out stem cell research. In 2003, Singapore launched Biopolis, a world-class research complex recruiting researchers from around the world (Biomed-Singapore, 2004). Stem cell world-expert, Dr Alan Colman, who was in Dolly cloning team, came to Singapore to spearhead projects of *ES Cell International*, to translate human embryonic stem cells into therapeutic potentials (Biomed-Singapore, 2005). Singapore's climate and stable funding attracts stem cell scientists from around the globe (*Bloomberg*, 2005; *The New York Times*, 2006;). Walters (2004) recognises Singapore as adopting Option 4 and 5 from his list, that research is permitted both on surplus embryos and research embryos created via IVF or SCNT.

The Singapore Bioethics Advisory Committee (BAC) had sought the viewpoints of various institutions and also religious councils, when deriving the report *Ethical, Legal and Social Issues in Human Stem Cell Research, Reproductive and Therapeutic Cloning* in 2002. The National Council of Churches of Singapore, the Catholic Medical Guild of Singapore, the Sikh Advisory Committee and the Singapore Hospital

Association believe that human life begins at conception, whereas the Islamic Religious Council (*Majlis Ugama Islam*) of Singapore contends that human life only begins after ensoulment[8] around the fourth month of conception. The Singapore Buddhist Federation supports research on 'non-sentient pre-implantation human embryos' for the benefit of mankind.

The Singapore BAC (2002) took careful considerations of the diverse views not only from the religious community, but also from the medical, legal, and scientific community and members from the international panel of experts. The Singapore BAC adopted the intermediate position that the human embryo has a special status acknowledging its potentiality to be a human being, but it does not have the same status as a living child or adult. The Singapore BAC supports ESCR as having potential benefits, but stated that research is allowed on embryos which are less than 14 days old.

According to the report by Singapore Bioethics Advisory Committee (BAC), embryonic stem cells can be derived from surplus embryos rather than allowing those embryos to perish, in view of greater good. In addition, acknowledging the need to balance between respecting embryo and potential benefits of ESCR, the Singapore BAC stated that the creation of research embryos (solely for research purposes) can only be justified when there is strong scientific merit and potential medical benefits with no other alternatives and on a highly selective case-by-case basis approved by the statutory body (Singapore BAC, 2002, pp. iii - vii, 26-30)

Singapore has provided a model study in conducting extensive consultations with various research groups and religious authorities on their standpoints on ESCR. It is noteworthy that Malaysia, which has similar cultural, demographic and religious make-up, has not come out with a report comprising views of all religious councils on ESCR. No similar study in the context of Malaysia has been carried out so far, and that is why this study explores the views of Buddhists, Hindus and Catholics on ESCR.

[8] Ensoulment is inception of soul into a human being, marking presence of life

Malaysia's current *Guidelines on Stem Cell Research and Therapy* based on *fatwa* ruling (MOH, 2009a), takes the middle-way approach that allows the use of surplus embryos for ESCR, but prohibits generation of research embryos for research.

Precisely, the progress of ESCR, the advances of scientific knowledge and research activities and oversight for regulations are dependent on public and private funding, which are very much influenced by the county's political and religious landscape. This explains why policies on ESCR vary according to countries and sources of embryos.

Hoffman, the founder of the Minnesota Biomedical and Bioscience Network, who has been following and mapping world stem cell policies for over six years, and reporting in *The Hastings Centre*, has come up with a map on International Stem Cell Policies in 2009, revising his previous 2003 map as shown in Figure 1.6.

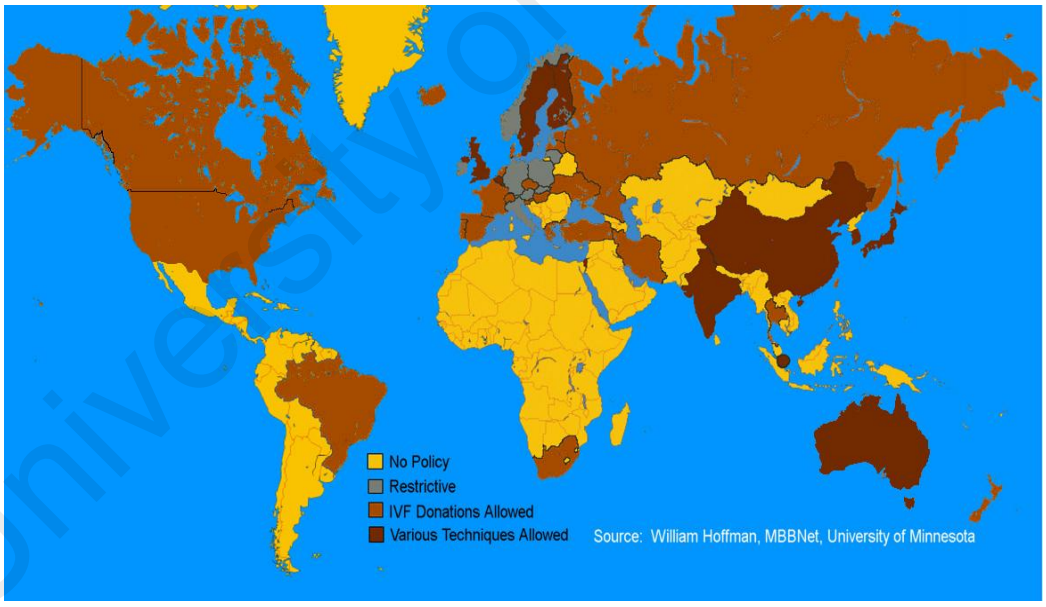

Figure 1.6: Stem cell world policy map 2009

Source:
http://www.thehastingscenter.org/uploadedImages/Bioethics_Forum/2009map.jpg

Hoffman came up with the map to reflect national policies as well as to review whether surplus embryos donated from IVF clinics can be used in ESCR. The map and explanation below is based on the information given in the Minnesota Biomedical and

Bioscience Network. Accordingly, dark brown denotes various techniques allowed, in countries like Australia, India, Singapore and China, which is reckoned as having permissive policy (Hoffman, 2009). Then, the light brown denotes that research is only allowed on surplus embryos derived from fertility clinic donations, in countries like Brazil, South Africa, Canada, Thailand, Russia and France, reckoned as having flexible policy (Hoffman, 2009). The grey shade denotes restrictive policy in countries like Ireland, Italy, Norway, Poland and Germany, and the yellow colour for countries which have not established any policy (Hoffman, 2009).

In this 2009 map, Malaysia, is shaded in yellow, but I am of the view that this certainly would have changed with the release of the *Malaysian Guidelines on Stem Cell Research and Therapy* in July 2009. There is no updated map on stem cell policy revising this 2009 map by Hoffman; however, I believe policies of all the nations would have been subjected to reviews and changes in the last five years since 2009 and therefore this map should be treated cautiously as it may not fully represent today's development in stem cell policies.

By and large, the policies in Malaysia are formulated taking into account the opinions of the religious community. Therefore, this study on the ethical perception of the religious representatives pertaining to ESCR is imperative.

1.10 Organisation of study

Chapter 1 provides an overview of this study. The statement of problem, objectives, research questions, and significance of this study are discussed. The research methodology is briefly discussed. Scope and limitations of the study is also delineated. This is followed by an overview on the scientific aspect of stem cell research (SCR). This chapter also provides insights on the sources of embryonic stem

cell research (ESCR) which include surplus and research embryos, worldwide policies and Malaysian guidelines related to ESCR.

Chapter 2 concentrates on the review of literature in two parts; first on ethical considerations and then on religious considerations. In the first part, related research and studies by scholars who have explored the subject on moral status of embryo is examined. This is followed by a review of religious considerations on ESCR. Both local and international Islamic works highlighting the position of Islamic community on ESCR are examined. The perspective of other main religions on ESCR is also examined, though the available literature is limited. This is followed by a summary of the significant literature presented in the form of a table. Finally, a critical evaluation of the literature which concurs with the statement of problem is presented, addressing the need to study the ethics of ESCR from the perspectives of the Buddhist, Hindu and Catholic leaders in Malaysia. A conceptual framework formulated based on the literature review is presented at the end of the chapter, which delineates the direction of this study.

Chapter 3 describes the methodology employed for this research - qualitative study with purposive sampling. The justification for employing a qualitative study concentrating on semi-structured interviews is given. The chapter also looks into why interviews were chosen over survey to study the perspectives of respondents for a contentious issue like ESCR. The interview guide which is closely aligned with the objectives and framework of the study, is presented. Criteria for choosing the sample size, and respondents who are 'information-rich', are discussed. This chapter also presents the profiles of the interviewees who were selected for this study. The method of analysis, that is thematic analysis, is also discussed.

Chapter 4 is dedicated to provide empirical evidence and research findings based on the analysis of data. This chapter begins by explaining how the themes were derived. This is followed by the analysis tables in assigning the themes. For every identified theme, a thematic map summarising the analysis table is presented, followed by analysis of the findings in descriptive form. The ethical concerns of the respondents, denoted as 'theme' are explored from various perspectives and supported with verbatim quotes from the interviews. The findings aim to address the first objective and partly the second objective of this study.

Chapter 5 brings to central discussion of the findings. Ethics of ESCR according to fundamental beliefs of the Buddhist, Hindu and Catholic tradition, interwoven with key findings are presented. This is followed by an overview analysis on the multitude viewpoints of the major faiths on ESCR, in which the commonalities and differences among the faiths are discussed according to the identified three themes.

Chapter 6 presents empirical findings and further discussion on the standpoints of the respondents with regards to the use of surplus and research embryos, alongside with literature on the acceptability of ESCR for both the sources. Finally, the recommendations of the respondents and their openness for a general consensus are explored, alongside with literature outlining the challenges for a consensus. This chapter aims to address the second and third objectives of this study.

Chapter 7 concludes the study by drawing a correlation between the findings and the objectives and research questions of the study. The findings are then incorporated in the conceptual framework. The chapter ends with implications of study, concluding remark, recommendations, and suggestions for future research.

CHAPTER 2: LITERATURE REVIEW

The literature review is divided into two parts:

2.1 Ethical Considerations – moral status of embryo that is on moral respect of early life; sentience, personhood and potentiality of embryo; and moral questions over the use of surplus and research embryos

2.2 Religious Considerations – summary on ESCR from the Islamic, Buddhist, Hindu and Catholic standpoints

This literature review explores and analyses the literature for the past 30 years but the focus is on the literature in the last 15 years published after the announcement on the isolation of stem cells by Thomson et al. (1998). Thereafter, is a summary table on significant review of literature. Section 2.3 presents my evaluation of the literature, and how this study comes in, contributing towards knowledge building in this field. A conceptual framework follows at the end of the chapter in 2.4

2.1 Ethical Considerations

This section looks into the ethical considerations of ESCR, which mainly revolves around the moral status of embryo, which is further examined from the aspect of (i) moral respect for early life, and (ii) sentience, personhood and potentiality of early embryos. Then the morality of ESCR in light of the use of surplus and research embryos is examined.

2.1.1 Moral Status of Embryo

It is inevitable that the derivation of stem cells from human embryos in ESCR, entails the destruction of those embryos. The morality of ESCR very much depends on the morality of destroying embryo, thus raising questions about the moral status of human embryo (Steinbock, 2006).

Moral status is attributed by moral agents to entities, by virtue of which it morally matters for the entities' sake. Thus, it gives rise to moral obligations towards the entities. We, human beings as moral agents, have moral obligations to those entities i.e. human embryos.

A human embryo is a member in the earliest stage of the *Homo sapiens* species, but does this mean the human embryo deserves full moral respect as that of a human being? This leads us to the question when does human life begin. To those who view that human life begins at conception, then that is taken as an indication to mark the moral status of a human being.

The ethical debate surrounding ESCR very much depends on the answer to the question: what is an embryo? If the embryo is regarded as a human being, then the treatment towards the embryo would be the same as that accorded to human beings. On

the other hand, if the embryo is regarded as nothing more than a clump of cells, then there would be less restriction to employ them in research (UNESCO IBC, 2001).

The morality of ESCR is often associated with the morality of abortion although each is distinctly different, and has its own ethical conundrums. Taking abortion as an example to discuss the moral status ascribed to human beings, Warren (1997) has categorised three classes of thoughts; conservative, moderate and liberal. The conservatives maintain that from the moment an ovum is fertilised, the conceptus is given the status of a human being, while the liberals argue that only at birth or some point after birth that one gains right to life. The moderates argue that a foetus does not have full right to life until it has attained some significant development (Warren, 1997).

Although issues revolving around ESCR cannot be compared to abortion, the three approaches - conservative, moderate or liberal - can be applied to discuss issues related to ESCR as well. Based upon religious convictions, some believe that human life begins at conception, and therefore a human embryo is a human person which has the same moral status as an adult or a living child (Lo & Parham, 2009). For argumentative purpose, I call this the 'conservative' view. There is also a view that embryo becomes a person in a 'moral sense' at a later stage of development (Lo & Parham, 2009). That implies the early embryonic life lacks moral status, and that moral status increases with degrees of development. I would call this as the 'moderate' view. Others, however, believe that the embryo or blastocyst is just a group of cells, and it is alright to utilise them for research. While acknowledging that these embryos deserve special status as a potential human being, it is permissible to use them in research for progress of science and morally good reasoning (Lo & Parham, 2009). I would call this the 'liberal' view.

According to a report by UNESCO IBC (2001), embryonic stem cell research raises ethical concerns giving rise to opposing principal positions, either (i) the use of

human embryos for deriving embryonic stem cells is 'intrinsically unethical', that is to 'instrumentalise human life' and to weaken the respect to those vulnerable, such as human embryos [I call this the conservative view], or (ii) a position that holds use of embryonic stem cells is ethically acceptable for medical purposes, because the embryo does not entail the respect and protection which goes with personhood[9] [I refer to this as liberal view]

Going with the latter position that ESCR is justifiable for medical benefits, Hug (2006) has raised the question as to whether the moral status needs to be compromised for therapeutic perspectives of human ESCR. Henceforth, Hug (2006) listed down the varying positions on the moral status of human embryo, which are human embryos (i) have full moral status from fertilisation and are worthy of protection, or (ii) gain moral status and protection gradually, or (iii) have no moral status, and no different from any other body parts. Hug concluded that the varying interpretations show that there is no general consensus on the moral status of embryo.

Tilting towards the conservative view, George and Gómez-Lobo (2005) disagree that an early embryo is only an intermediate form which later emerges into a whole human organism. They maintain that the development from zygote stage onwards is directed from within itself. Now, this brings us to the question as to whether the human embryo is a human being deserving full moral respect. To that, George and Gómez-Lobo (2005, p. 205) state that since human beings are intrinsically valuable deserving full moral respect, it follows the same way from the point they come into a being. That also includes early embryonic live coming into existence from fusion of gametes, and as such they should be accorded the full moral status and respect ascribed to inviolability of any other human beings. According to George and Gómez-Lobo (2005, pp. 201 - 203), we distinctively were 'whole, living members' of *Homo sapiens* at embryonic stage and the combination of maternal chromosomes of the egg and paternal

[9] Personhood is defined as the status of being a person. More discussion in Section 2.1.1.2

chromosomes of the sperm signifies the existence of new, distinct organism. Although the timing of the early cleavages is controlled by maternal RNA within embryo, they argue that the cleavages would not have occurred without the presence of the nuclear gene and therefore the direction of the embryonic growth relies on the genetic information in it. The embryo is a living organism as the major development is controlled and directed from within itself and it is unlike gametes, as it is 'not part of the mother or father anymore', it is actually a new living being.

Here, are we referring to biological development or genetic development? A new human life begins from the union of the sperm and ovum. However, according to Green (2002, part III, p. 21), biologically for us to accept the existence of a human life the forty-six chromosomes [omitting abnormalities] from the father and mother have to work together but at the early stages of human development, the zygote is controlled by the maternal RNA. Therefore, how can we be assured that the life of a new human being has already started at a point when the ovum is fertilised? Green (p.21) further questions as to when we can determine that fertilisation has occurred – is it after the genetic material from the sperm penetrates the egg's outer membrane (*zona pellucida*), resulting 'signals pass to *zona* that renders it impenetrable by other sperms'? Green also points out that it is only correct to say that human cell exists when the forty-six chromosomes work together, but this is not the case during the first few cell divisions whereby the earliest development structure is 'governed by the egg structure and maternal chromosomes'. In his paper, Green (2002) argues that a biological occurrence such as fertilisation is a process rather than an event and therefore the determination of significant point within these processes involve choice on our part.

On that note, Orr agrees with Green that fertilisation is not an event, but a process that consists of subprocesses (Orr, 2002). However, Orr disagrees with Green on the point that 'the beginning of life is at the end of the beginning of the processes'.

Orr (2002, p.58) goes on to claim that 'the beginning of life is at the beginning of the beginning of the process'. Therefore, the process is inherent, not imputed. In other words, the moral status of embryo is also inherent and that fertilisation clearly marks the start of moral status.

If fertilisation marks the start of moral status, does the embryonic life warrant inviolability? To this, Gomez-Lobo (2004) writes, "…if I claim inviolability for myself now, it would be irrational not to claim it for previous stages of my existence, all the way back to my inception" (p.79).

DeGrazia (2007, pp. 299-300) says that inviolability here refers to moral respect, and therefore he says that those words are more of an appeal for the 'necessity of early moral protection'. One cannot resolve the issue as to whether early embryo has moral status by referring to present status of inviolability in a simple reductionist manner, because the present entitlement not to be killed does not entail past entitlement in the same manner.

Along the same line, McMahan (2002, p.4) states that the fact that 'something living and human being begins to exist around the time of conception does not follow that we began to exist at conception'. Now, does this imply that the 5-day old human embryo lacks moral status?

Another contentious point about the cells of early human embryo is the distinction between the ontological status (nature of existence) of the human embryonic stem (hES) cells with that of an embryo (de Wert & Mummery, 2003). They argue that if one regards (hES) cells derived from inner cell mass (ICM) of a blastocyst as embryos, then we should also regard somatic cells which have potential to develop as embryos via cloning technology as embryos too – and that would be absurd to think that somatic cells are potential persons. Resonating to this, is the argument that 'mere

species membership' cannot confer moral status on an embryo at blastocyst stage which lacks the properties of a rational agent (Brock, 2006).

At this juncture, if we were to say human beings have full moral status, in the first place, how could one reason out what confers that moral status on us? (DeGrazia, 2007). In other words, how can we be assured that we human beings are entitled to full moral status? Though one would go back to the religious texts that state Man is given special status on Earth, it is difficult to link *Homo sapiens* and full moral status (DeGrazia, 2007). The question remains that if embryos have full moral status, then research that entails its destruction is impermissible (DeGrazia, 2007). Here, again we are faced with the question whether destruction of early embryos is tantamount to killing.

Another pressing issue, is the association made between ESCR and abortion, because of the concerns over the manipulation and destruction of early 'life'. The proponents of pro-life are against destruction of life in any form.

It is important to note that abortion involves aborting foetus (a development after embryonic stage) by choice whereas ESCR involves destroying early stage embryos of 4-5 days old, and to a great degree is less of a moral concern for it focuses on harvesting cells for therapeutic uses. As much as abortion seems to be synchronised with ESCR, there are many factors that distinguish both.

Hanson (2006) argues that a position against abortion does not necessarily lead towards ESCR rejection. The difference in potentiality between the embryos utilised in ESCR and the embryos discussed in abortion debate - could allow ESCR even if one argues that abortion is impermissible, based on the moral distinction between *in vitro* embryos and embryos (or foetuses) in the womb.

Davis (2002) highlights that the stem cells are derived from embryos which have never been and will never be in a woman's body. Davis stated, "The fears that prompt

people to oppose abortion and reproductive cloning are not necessarily relevant to stem cell research" (p.48)

Along this line, it is worth noting that there are pro-life activists who strongly oppose to induced abortion who have accepted ESCR. One fine example is the announcement of Senator Orrin Hatch, who is a pro-life activist himself in the United States. Hatch (2002) in his senate website stated, "The support of embryonic stem cell research is consistent with pro-life, pro-family values…I believe that human life begins in the womb, not a petri dish or refrigerator …"

The logic behind this kind of argument is that the personhood of an embryo depends upon the location and method of fertilisation. However, countering this argument is that all human embryos are human beings, regardless of the method of procreation.

Those who are against abortion generally have made two assumptions; (1) Human beings exist at conception, (2) Human beings have full moral status beginning from zygote stage onwards (DeGrazia, 2007, p.297).

This again brings us to question the moral status of an embryo. If human embryo has moral status, then the research that entails its destruction is unethical.

Debates on the moral status of embryo in legal ruling often refers to the United States (US) Supreme Court decision in 1973, *Roe v. Wade*, 410 US 113(1973), which legalised abortion for the first two trimesters of pregnancy.[10] Pregnancy is divided into three trimesters. Each trimester corresponds to the development of the human embryo. This is the first case in which the US Supreme Court dealt specifically with the legal status of embryo, and to determine whether the embryo (or foetus) to be aborted was a 'person' or not. This court ruling protected women's right to abortion through the point of foetal viability, i.e. the ability of the foetus to survive outside the uterus. The court

[10] For a copy of detailed court decision, see Newton 2007, p. 72-74, 222-223

ruling concluded that the chances of survival of an embryo outside the uterus during first trimester are so small, that it could not be legally considered to be a 'person'.

How does this ruling on abortion, have a bearing on ESCR? Extracting stem cells from inner cell mass of blastocyst entails the destruction of embryos, which lead us to question the moral status of the embryo itself. With respect to ESCR, the court ruling did not resolve the question as to when life begins. If it is legally right to abort the embryo for the first two trimesters of pregnancy, then would it be also ethical to conduct ESCR with 4-5 day old embryos? This is what researchers want to know and compelled to question when human life begins. Thus, the *Roe v. Wade* case has only a 'modest impact' on the morality of ESCR (Newton, 2007).

The interpretations on moral status of embryo, however, vary according to geographical, cultural and demographic factors. This study seeks to explore the issue from the religious aspect of Malaysia.

In the next section, literature on the moral status of embryo is examined further from the aspect of moral respect for early life; and sentience, personhood and potentiality of embryo.

2.1.1.1 Moral Respect for Early Life

To study the morality of ESCR, we need to know the moral status of a 5-day old embryo. For that, first, we need to know when life begins and worthy of respect. Fischbach and Fischbach (2004, p.1369) argue the claim that life begins at conception is an easy way-out relying on the assumption on the 'value of potential of life'. But it is not the best way to describe beginning of life as 'value is placed on function rather than structure'. They also pointed out that implantation of embryo in the uterine wall marks

the beginning of life, and the point when the nervous system starts to form whereby sensation exists indicates the presence of life (Fischbach & Fischbach, 2004).

To regard five-day old embryos as having life would mean that the destruction of those embryos in ESCR would be viewed as killing. As to whether harvesting stem cells from blastocyst is tantamount to killing a human being, Sandel (2004) asserts that because every person began life as embryo does not prove that embryos are persons, as human life develops by degrees. Sandel quoted the example of 'oak trees were once acorns' does not show that acorns are oak trees. Whether we can make comparison between an embryo and an acorn is a question itself.

The often-laid arguments are that human embryos are not full human person, and are not human beings worthy of human respect because, they have a high mortality rate, and high chances of being spontaneously aborted.

According to Sandel (2004), viewing embryos as persons will rule out not only ESCR but also all other fertility treatments that use embryos. This very much tells that the embryos in the laboratory are not entitled to the same moral respect as to how we perceive an embryo implanted in a woman's uterus. Supporting this view, is the argument that an early human embryo prior to implantation does not have the same moral status as a human person because it lacks morally relevant capacities (Hall, 2004). In addition to that, Sandel (2004) also pointed out to the work of 'nature' whereby a high percentage of embryos spontaneously abort due to failure of implantation. This is seen as a reason for not according early embryos the same moral status as that of the embryos at later development stages (Hall, 2004). This is in line with the gradual view that the moral status of embryo increases with stages of development in life (Hug, 2006). However, the argument against this view is that if we were to regard the moral status of embryo according to its biological development, then it would be like making arbitrary decisions about what a human embryo is.

Along the same line, McGee and Caplan (1999) who explored the characters of the cells in the petri dish noted that it is "not always possible to link the moral status of a thing outside the human body to the status of some tissue destroyed in its creation" (p.37). Moreover, according to them, one cannot prescribe the traditional definition for viability of embryos (and foetus) when new medical breakthroughs lead to formation of embryos without the need of conception.

However, Ruiz-Canela (2002) states that there is strong opposition to research on human embryos as the 5-day old blastocyst is 'not an ordinary cluster of cells' or mere tissue but contains the genetic information needed for development, and therefore it is argued that respect for human beings should not be based on 'developmental view' but must be same regardless of the developmental stages. Brock (2006) pointed out that even to those who do not believe that a human embryo is a human person, hold the view that the embryo is not 'mere tissue' to be destroyed.

Conversely, Devolder and Harris (2007) claim that there is ambiguity on the ontological status (the nature of existence) of embryo and the claims about its special status are hard to support as there is not much research to reduce the high rate of embryo loss in natural pregnancy as well as assisted reproduction treatment.

Sandel (2004) points out that the way we respond to natural loss of embryos in pregnancy due to failure of implantation suggests that we do not regard it the same way as the death of a baby child. However, George & Gómez-Lobo (2005, p. 208) argue that unsuccessful pregnancies are due to incomplete fertilisation; therefore one cannot denote the lost of entity as a loss of human embryo. On arguments that people do not grief for embryo losses as much as they grief for the loss of their child do not justify that early embryos are not entitled to full moral respect, because the grievances are more to the fact of visible emotional bonding that they had with the child and that does

not explain why we should not give full moral respect to early embryos (George & Gómez-Lobo, 2005).

The US National Bioethics Advisory Commission (NBAC) states that research which inevitably involves the destruction of surplus embryos ought to be allowed to develop cures for life-threatening or severely debilitating diseases (NBAC, 1999).

As such, Baylis (2001, pp. 52-54) points out that the NBAC is trying to rationalise the killing of embryos and also demonstrating respect for embryos, therefore the use of the term "respect" itself is problematic.

Similarly, Callahan (1995) wrote, "I have always felt a nagging uneasiness at trying to rationalise the killing of something for which I claim to have a profound respect" (p.39).

What does this imply? If the early embryo is not entitled to the same respect as the developed life, would it then be ethical to conduct research using those early embryos which ultimately leads to their destruction? If these 5-day old embryos constitute of a mass of cells are considered like any other body tissues, then there would be no significant ethical restraints. Lebacqz (2001) says it is possible to specify a meaning for respect for embryos that will be used in research without the embryos being devalued or disrespected.

Again and again, we ponder whether a 5-day old embryo utilised in ESCR, actually denotes early life and is worthy of moral respect.

As to whether early embryos are worthy of moral respect, the notion of consciousness is argued as an important criteria to define presence of life, which is a pre-condition of sentient being, that is to have the capacity to feel pressure and pain.

However, until day 14 of fertilisation, the blastocyst has no nervous system, and therefore cannot sense pain, which is an attribute of a human being. Therefore, the embryos cannot be considered sensate before day 14. It is reasonable to consider the

phase when the possibility of sensation first exists as the beginning of human life (Fischbach & Fischbach, 2004).

Fischbach and Fischbach (2004) also reasoned out why the implantation of embryo (blastocyst) in the womb is the best landmark for definition of life. This is because the embryo is now defined as an individual, passing the stage in which it can undergo twinning.

The possibility of twinning at embryonic stage has been forwarded to suggest that embryos lack the value which is unique to individual persons and hence lose their moral status. This is related to the idea that at the early stages there is uncertainty; of the embryo resulting in a unique human individual or two (or more) individuals. It is only when twinning is no longer possible around day-14, individualisation begins.

However, scholars George and Gómez-Lobo (2005, p. 206) disagree to this as they opined that twinning does not indicate that embryo is a mere clump of cells just because cell detachments may take place at early stage of embryonic development.

On the other hand, the possibility of spontaneous twinning right to the stage of implantation has led other scholars to argue that those who insist ensoulment (inception of a soul) begins at conception would have a problem to account for the splitting of soul at that stage. (Devolder & Harris, 2007)

In relation to this, they argued that:

> Those who think that ensoulment takes place at conception have a problem to account for the splitting of one soul into four, and the destruction of the three souls when the four embryos are recombined into one (Devolder & Harris, 2007, p.17).

Along with that, Marquis (2007, p.65) is skeptical of the argument that it is wrong to end the life of a five-day old embryo. Marquis sees detachment of cells as not

more than a 'change in spatial location'. If one holds to the view that an embryo has a future value, so do all its cells and this would lead to something intangible, thus Marquis (2007, p.65) concludes that objection against human ESCR is not strong enough to warrant its prohibition. The two reasons are: (1) embryo would only have future value if its later stage is a human being whereby human being would be 'phase sortal'[11], (2) the nature of embryo and possibility of twinning suggests that embryo do not have a future value.

As elaborated above, it can be surmised that a human embryo is worthy of protection after day 14 of fertilisation because (i) the end of twinning around day 14 marks individualisation, and (ii) formation of nervous system around day 14 marks the possibility of first sensation, and is a landmark in definition of life. Until day 14 of fertilisation, the embryo has not developed a nervous system and it cannot be considered sensate. Fischbach and Fischbach (2004) compared that to patients who are pronounced brain dead, but whose organs are donated to save lives of others. Their view is that these early embryos are cell donors with the same or lesser moral status than those patients.

Based on the above, it is worth asking whether the 5-day old embryo has full moral status and thus worthy of moral respect and protection, or whether it affords some special status, or whether the moral status of the embryo increases gradually with its development. Also, does the 5-day old embryo constitute life, or when does life actually begin? Does the embryo have human life but it is not considered as a human person? Since there is a high rate of mortality and high chances of spontaneously aborted, is the embryo worthy of moral respect? Prior to the formation of nervous system and the end of possible twinning at day 14, can the 5-day old embryo be regarded as worthy of moral respect? All these ethical considerations are surmised from the above review.

[11] Phase sortal is a concept by philosophers in discussing identity

Precisely, the question worth asking is how are we to allow ESCR (involving destruction of embryos) while at the same time accord respect to early human life. This study seeks to explore the religious perspectives from the context of Malaysia in an attempt to answer the questions raised above.

2.1.1.2 Sentience, Personhood and Potentiality of Early Embryos

In discussions pertaining to moral status, sentience is viewed as a criterion. According to Bortolotti and Harris (2005, p.68), sentience is a "prerequisite for having an interest in avoiding pain". Scholars argue that sentience of life is marked through sensory movement which takes place around 14 days after fertilisation. This is because up to 14th day of development, the blastocyst has no central nervous system and cannot be considered sensate (Fischbach & Fischbach, 2004).

However, Warren (1997) states that no single property such as sentience can serve as sole criterion for moral status. Warren (p.18) further argues that sentience is a being's capacity to experience pleasure and pain which provides reason for recognising moral obligations not to kill it, but it is not regarded as a sufficient condition for full moral status.

Warren (1997) asserts that since "not all conscious experiences are either pleasurable or painful, evidence of consciousness is not necessarily evidence of sentience" (p.55). On this account, one is impelled to suggest that since consciousness is not necessarily a condition of sentience, it also does not indicate one's moral status.

George and Gómez-Lobo argue (2005, p.204) that to give moral respect to human beings based on their acquired characteristics is untenable, as one need not have

to be ‘conscious, reasoning and deliberating’ in order to earn full moral respect taking into account people who are in ‘reversible comas do deserve such respect’. The argument is that every human being should be entitled to the same moral respect regardless of their acquired characteristics and their current state of mind. The concern here is how we apply this view in the context of a 5-day old embryo.

Another criterion to moral status is the concept of personhood. The conceptual link is arguably between being a person and having full moral status, says Warren (1997, p.91).

According to Bortolotti and Harris (2005, p. 68), personhood is a ‘prerequisite to continue one’s own existence’.

Warren (1997, p.19) argues that personhood referring to mental capacities, that are ‘subsumed as rationality and self-awareness’, is a sufficient condition but is not a necessary condition for full moral status taking into account the mentally disabled.

Fischbach and Fischbach (2004) draw a comparison between cases where organs are removed from a patient who is alive but declared brain dead to save other lives, with the act of extracting stem cells for therapeutic purposes from early embryos which have not developed nervous system. In this context, the moral status of the early embryos is viewed same or lesser than those brain dead patients.

However, by just referring to the development of the human mental functions as a quantitative criterion does not justify why one deserves moral respect and the other does not (George & Gómez-Lobo, 2005, p.205). Human being whose mental functions are deteriorated are also living beings who deserve moral respect.

On that point, Warren (1997) raises grounds objecting Kant’s deontological theory which places emphasis to personhood. Warren argues that Kant’s claim that only rational beings are ends in themselves, would seem that human beings who are not “moral agents are not ends in themselves, and do not have moral rights” (p. 101).

To extend this view in the context of a 5-day old embryo, one has to ask whether the embryo has the same basic moral rights for it to be accorded moral status as other sentient human beings, though it may not be a human person yet.

On that point, Harman (2007, p.84) states that creating embryos and then destroying them to extract stem cells is permissible only if the destroyed embryos lack moral status. Harman offered an alternative argument, called *Ever Conscious View*: "pre-conscious embryos that will die without ever being conscious lack moral status" (p.84). This means that 'pre-conscious' embryo, according to Harman (p.83), would have lacked moral status if it died before coming conscious, and that killing it would mean killing something that lacked moral status and as such the killing is permissible.

At this juncture, another point to note is the argument that a landmark definition of life lies in the end of possibility of twinning around day 14 after fertilisation, which marks the individualisation of the embryo. McCormick (1991) has argued about **'**attainment of developmental individuality**'**. Accordingly, an embryo which has developed to a point into one individual differs in moral status from an early embryo which has not become a definite individual. However, this argument is refuted by Orr (2002) who argues that these embryos are already human individuals with the potential of becoming twins.

On this account, it is worthy to note that formation of primitive streak at 14 days of gestation is taken as one reference point in development of human individual (Warnock, 1984, 11.22). This was the reasoning behind the Warnock Committee's recommendation of no embryo research beyond 14 days (Warnock, 1984). The reason is that only when twinning is not possible anymore, a unique organism is formed. That is why the Warnock Committee recommended that embryo research should be limited to the first 14 days of development. It is important, however, to take note that the Warnock report does state that embryo ought to have a special status and afforded some

protection (Warnock, 1984, 11.17). Nonetheless, it is unclear as the report does not address whether the embryo is a person, though it has outlined the said conditions.

This 14-day limit is also articulated in the International Society for Stem Cell Research guidelines (ISSCR, 2008). Accordingly, the ISSCR guidelines prohibit *in vitro* culture of human embryos beyond 14 days or after formation of primitive streak. This 14-day limit is widely accepted among the researchers in the human stem cell field, recognising the biological differences between an early embryo and an embryo that has begun its organogenesis [organ creation] (Daley et al., 2007).

According to the United States President's Council on Bioethics (2002, Chapter 6) report, there are sound moral reasons for not regarding early embryo in the first 14 days as the 'moral equivalent' of a human person, and that the embryo can be used for life-saving research, though it commands more respect than other [ordinary] human cells. This view is developed by considering among others, the possibility of twinning and moral significance of implantation. The possibility of twinning suggests that an early embryo is not an individual yet. It is only after 14 days or after the formation of primitive streak, the 'being' is a single being. On the moral significance of implantation, it is argued the IVF embryos produced in the lab differ from those embryos that are conceived and naturally implanted in the woman's womb without the assistance of technology and human artifice. According to the report, the significance of implantation is that the self-direction of embryo towards birth becomes possible without any external human artifice. That distinguishes the moral status for IVF embryos created for research with those embryos naturally conceived and implanted in the womb. That means, the moral status of an embryo in the petri dish in the laboratory (if at all it has moral status), would differ from that of an embryo implanted in a woman's womb.

In debating about the moral status of embryo, the individuality and potentiality of an embryo is also of concern. The human embryo has the potential to develop into a human being if nurtured in the right environment. Thus, there is opposition to ESCR on the grounds that the destruction of embryo prevents the embryo from fulfilling its potential. The counter-argument is that *in vitro* embryos have no potential to develop into human being if they are not implanted in a woman's uterus that provides the necessary conditions for development. On this account, UNESCO IBC (2001, p.10) states that since there is no possibility of implantation and so the embryo has no potential to develop into a human being, it is then ethically defensible to use these embryos for therapeutic research purposes.

On the contrary, embryos 'lacking interest' in themselves, however, deserves special respect due to their potential to develop into foetus if implanted in the uterus (Robertson, 1999). McCormick (1991) highlights that it is important to consider that embryo's potential for personhood and as such deserves profound respect, and proposes that early embryo should be treated as a person due to many uncertainties in deliberating its status.

Meanwhile, Hanson (2006) questions whether potentiality of embryo differs from that of *in vitro* embryos? Hanson argues that a frozen embryo cannot develop without external aid as it lacks active potential, and therefore the potentiality of embryos in pregnant women differs from that of the frozen embryos used in research. If this is agreeable, then the argument against ESCR on the basis that embryos have potentiality to develop into person does not hold.

Here, an important question to ponder is whether research on early embryos reduces their value to instrumental tool.

Reflecting on all these, the United States President's Council on Bioethics (2002, Chapter 6) report, sums up that it is possible to accord 'special respect' to early

embryos while utilising them in research. The reason for this is that the Council assigns intermediate status to human embryo. Accordingly, those who regard early embryos as "mere" cells are ignoring the inherent connection to the origins of human life. It would be a 'mischaracterisation' to define potentiality per se, as there is a difference between having the capacity to become anything with having the capacity to be something in particular, which is an individual human person. At the same time, the early embryos cannot be treated as morally equivalent to a human person because the absence of "consciousness", "the capacity to express needs", and "the capacity to feel pain" in early embryos suggest that they have not developed enough to be defined as a truly human person.

As such, it can be argued that research on the so-called nascent human life, that is the 4-5 day old embryos for life-saving researches, is justified as the embryos cannot be accorded the same protections and rights given to a human person, although it commands special respect.

2.1.1.3 Moral questions on the Use of Surplus and Research Embryos

As stated in Chapter 1, the sources of human embryonic stem (hES) cells include:

(i) embryos created by *In Vitro Fertilisation* (IVF) for infertility treatments which are no longer needed, denoted as 'surplus' embryos (Dickens & Cook, 2007);

(ii) embryos created via IVF solely for research purpose (Lanzendorf et al., 2001), denoted as 'research' embryos.

Couples who undergo IVF treatment would end up with surplus embryos which are no longer needed and they can either opt to discard the embryos, or donate them to

another couple or for research purposes (Braverman et al., 2009). Consent needs to be obtained from couples who decide to donate the surplus embryos for research, and the consent process should inform donors of the nature of ES cell derivation (Braverman et al., 2009). When research cannot be carried out on surplus embryos alone, embryos are then created via IVF from gametes donated by volunteers who have no reproductive intent. Human gametes which are, oocytes (egg cell) and sperms donated by anonymous donors are inseminated and cultured to form blastocyst, which is later extracted to produce human embryonic stem cell lines. These embryos created solely for stem cell research purposes are termed as research embryos.

As discussed in previous sections, ethical dilemma concerning morality of ESCR using early embryos revolves around the moral status of those embryos, which can be surmised as follows:

- Does an embryo have a moral status, and does the status of an embryo differ from that of an adult human being?
- Should an embryo be given the respect and protection that a human being deserves?

Now, the aforementioned ethical questions need to be further examined with regards to the use of surplus and research embryos in ESCR.

Acknowledging the fact that the embryonic stem cells can be derived from surplus embryos from infertility treatments, or from research embryos created solely for research, Steinbock (2000) argues that there is no moral difference between utilising surplus or research embryos in stem cell research.

On the other hand, the 'discarded-created distinction' has been forwarded to support that is there is a moral difference between doing research on surplus embryos originally created for reproduction purpose, with the research embryos created with the

sole intention of using them for research (Parens, 2001). The latter raises more ethical controversies.

In view of respecting human embryos, the argument is that rather than letting the surplus embryos go to waste, using them to save lives, is a way of treating the embryos with respect. Using surplus embryos instead of discarding, for research that has the potential to benefit lives of human beings are encouraged (Manninen, 2007, p. 100).

However, is there a moral difference between letting the surplus embryos to die and destroying those embryos to harvest stem cells for research?

On that account, McMahan (2007) who examined the common grounds and assumptions in making comparisons between infertility treatments [which involves creation of surplus embryos] and human embryonic stem cell (hESC) research [which involves destruction of five-day old embryos in the process of extracting stem cells] states:

> "…if there is a objection to using embryo as a means, and if the distinction between killing and letting die has [moral] significance,…then there are reasons to think that assisted conception is less morally objectionable than hESC research, - though these reasons may be offset to a considerable extent by the greater goals of hESC research" (McMahan, 2007, p. 37).

McMahan (2007, p.37) further noted that hESC research aims to find cures for debilitating diseases while assisted conception primarily enables infertile couples to have babies.

Although there is a distinction between ESCR and infertility treatments, does using surplus embryos for ESCR which otherwise would be discarded lift the prohibition against destroying them?

According to scholars, the life of a 100-cell embryo is in its cell nuclear DNA. When inner cell mass (ICM) cells are extracted from embryo for cultivation, the DNA is 'preserved' and therefore the embryo is not 'sacrificed' (de Wert & Mummery, 2003, p.675). However, they noted that this point is disputable since the embryos sacrificed for research is 'masked'. Lindsay (2009, p. 234) argues that it is technically incorrect to use the term 'destroying or killing the embryo' because the embryo from which the ICM has been removed will not develop into a foetus, but the cells extracted will 'remain alive far longer than they would have if the embryo has continued to develop'.

Now, should we just allow the surplus embryos to die? The Warnock Committee in its report stated that it is satisfied that surplus embryos may be used as subjects for research (Warnock, 1984, 11.24). The Warnock Committee recommends that research on human embryo should be conducted only under license and stringent monitoring (11.18) (Warnock, 1984). However, it should be noted that this report was published prior to ESCR discovery in 1998, but is it still largely referred to.

In reference to Callahan's (1995, p.39) statement that "I have always felt a nagging uneasiness at trying to rationalise the killing of something for which I claim to have a profound respect"; Manninen has (2007, pp. 90, 98, 101) refuted by arguing that the proper respect for surplus embryos is manifested by using them in research which allow their existence to have a [positive] impact on the world, rather than just to discard them. Manninnen further added that respect for surplus embryos entails the 'moral permissibility' of using them for ESCR. In view of IVF practices that create thousands of surplus embryos which will be disposed, it is only respectful that these surplus embryos are used in potentially life-saving research. These embryos lack moral status as they are nowhere near mid-gestation point and the use of surplus embryos for stem cell research indeed gives proper respect to the embryos (Manninen, 2006).

Sandel (2004) points out that if it is immoral to sacrifice embryos for treating diseases, then we should consider it immoral to sacrifice them for sake of treating infertility. It is to be noted that the benefits from ESCR promises to bring relief to larger group of patients as opposed to the infertility treatment which only caters to the need of a couple.

The important controversy which is the fundamental issue and focus point of this study, is whether it is morally wrong to create embryos for research purposes which are inevitably destroyed in the process, with no intention to create babies. At this point, we have to give careful thought to the way we distinguish the research embryos from the surplus embryos available for research only when they are no longer required (Parens, 2001, p.43).

According to UNESCO IBC (2001, p.10), surplus embryos have no future. Taking into consideration that the therapeutic intention can 'contribute to the ethical choice' of employing the use of human embryos, it is ethically permissible to utilise the surplus embryos for therapeutic research purposes, as the only other option is their destruction [discarded as waste].

According to Robertson (1999), only when research using surplus embryos is deemed acceptable, the question whether embryos can be created and destroyed for research arises. Robertson conclusively puts it that those who are against research using surplus embryos will also oppose using research embryos; but there are those who approve the use of surplus embryos who (might) disagree to the latter.

Parens (2001, p.53) highlighted the United States Human Embryo Research Panel (HERP) 1994 report, that the intention to create embryos for research purpose has led us to think that "they are mere means to ends rather than as ends in themselves".

It is worth asking whether using surplus embryos as means to achieve the ends decreases respect for human life. On the other hand, is it justified to create research embryos for ESCR?

This very much brings us to Kant's categorical imperative whereby rational beings must be treated as ends to themselves. However, Manninen argues that given the fact that embryos lack consciousness and rationality, one cannot denote that embryos fall into that category (Manninen, 2007; 2008). In the same manner, Warren (1997) claims that Kant's maxim is subjected to objections as far as embryo is concerned. Warren (1997, p.101) raises grounds objecting to Kant's deontological theory which places emphasis to personhood. Warren argues that Kant's claim that only rational beings are ends in themselves, would seem that human beings who are not "moral agents are not ends in themselves, and do not have moral rights. Along that line, Steinbock (2006) points out that the Kantian respect cannot be applied to early embryos since they do not have interests and goals, so they are not 'ends in themselves'.

The United States National Bioethics Advisory Commission (NBAC, 1999, p.56) has highlighted the discarded-created distinction, on the moral difference between surplus and research embryos. Surplus embryos are created for reproduction purposes and when they are no longer needed in infertility treatments, these embryos are either discarded or become available for research; whereas research embryos are those that are solely created for research purposes. The latter raises concerns about 'instrumentalisation' and treating embryos as mere objects. According to the commission report, this leads us to 'think of embryos generally as means to our ends rather than ends in themselves'. On that point, Steinbock (2006, p.438) submits that if Kantian respect cannot be applied to early embryos since they do not have interests and goals, then we cannot treat those embryos as ends in themselves. Steinbock adds that as much as creation and destruction of surplus embryos which is a very much part of IVF

is justified for reproduction purposes, so is the creation and destruction of research embryos aimed to improve people's health. Thus, Steinbock concludes that neither the creation and use of surplus embryos nor research embryos 'contravene the respect for embryos as a form of human life' (p. 438).

Besides respect for embryonic life, critics also advocate the principle of non-maleficence ('do no harm') when dealing with embryo research. One cannot justify the harm inflicted to an embryo by referring to the benefits of the research in saving people. Does the act of manipulating embryos for research viewed as inflicting harm on embryos? Mahowald in her reply to Gomez-Lobo, says that respect for human embryos does not necessarily entail that it is morally wrong to destroy them (Mahowald, 2004).

Harman (2007) asked, if the practice to destroy embryo is unfair to embryo, does it mean the practice is immoral? Here, one has to understand that the act of destroying embryo must not only be seen from the human being's perspective, but also from the value point of an embryo. Interestingly, Harman (2007) states that although destroying surplus embryos may cause harm to the embryo by depriving it of a chance to live as a person, the harm is not significant as it very unlikely to get to live as a person.

On that point, the argument to grant respect to human embryos simply because they represent the beginning of human life on the basis of symbolic value of the embryo only challenges the permissibility of ESCR (Bortolotti & Harris, 2005).

Hanson (2006) argues that if one were to see that destruction of embryo in ESCR as killing, then [referring to infertility treatment], one should also hold that the embryo that is frozen, thawed and implanted and subsequently grows into a human is actually killed before birth.

Robertson (1999, p.128) points out that the ethical acceptance of creating research embryos for ESCR "will thus turn on to the symbolic meanings associated to

such practices in light of the research benefits". Robertson adds that some would argue that creation of research embryos only to destroy them later "raises symbolic harm, beyond that which exists with research using surplus embryos, and which cannot be justified by benefits that the research might bring" (p.128).

Biologically, however, the moral concern of harming the embryo does not arise because a five day old embryo has not developed the primitive streak as a pre-condition for a developing conscious being. The 5-day old embryo has not developed a nervous system and thus it cannot sense pain.

Islam, Rusli, Ab Rani and Hanapi (2005) from Malaysia wrote on ethics of different policies in the Western world with regards to surplus embryos and ESCR. They defended ESCR as a new frontier in biomedicine, by exercising the 14-day rule in utilising surplus embryos for research.

At this juncture, it is worthy to note that Outka (2002, p.193) has extended the 'nothing is lost' principle. The principle states two conditions: (1) the innocent will die in any case and (2) another innocent life can be saved. Here, surplus embryos from infertility treatment satisfy the first condition, and the innocent lives suffering from diseases satisfies the second condition, which means employing surplus embryos in research for therapeutic purposes is in line with the aforementioned principle. According to Outka (2002), the creation of research embryos should be resisted, but research on surplus embryos is permissible.

Moral questions are raised in regards to the use of surplus and research embryos. In summary, some of the important concerns raised by scholars are as follows:

- How does the moral status of surplus embryos differ from that of research embryos? Does utilising surplus embryos for research show a lack of respect for the embryos? (Hug, 2005).

- Is using research embryos morally worse than using existing surplus embryos? (Hug, 2005).
- Should embryo use be limited to surplus embryos or can it include research embryos? (de Wert & Mummery, 2003).

A common question on the moral use of both surplus and research embryos for ESCR is whether it is ethical to conduct research on human embryos (which are regarded as living entities) for the sake of treating diseases. A further consideration is whether the therapeutic benefits of using embryonic stem cells contribute to our ethical choices.

The common argument is that it is ethically defensible to use surplus embryos for research and therapeutic purposes as those embryos have no future. However, is creating research embryos justified to derive stem cells for therapeutic purposes, and does that undermine the respect for human body?

All these ethical concerns need to be examined in the Malaysian context with regards to the use of surplus and research embryos in ESCR. This is what this study attempts to explore, on the ethics of ESCR from the perspectives of the Buddhist, Hindu and Catholic groups in Malaysia. At present, Malaysia's current *Guidelines on Stem Cell Research and Therapy* is based on *fatwa* ruling from the Islamic Council (MOH, 2009a), which takes the middle-way approach to allow the use of surplus embryos for ESCR, but prohibit the generation of research embryos.

2.2 Religious Considerations

In view of the ethical discussions on when human life begins and whether a 5-day old embryo can be regarded as having life, it is pertinent that those concerns are addressed and reflected from the religious context. This is more so in countries such as Malaysia that are strongly rooted in religious beliefs.

The views from the major religions in the world, namely Islam, Buddhism, Hinduism and Christianity, are sought as guidance in ethical discussions, mainly on fundamental issues like nature of life. Diverse views exist within and among religious traditions on when life begins. The perceptions on the moral status of human embryo vary with the religions, and Malaysia is no exception. This would further result in varying viewpoints regarding the positions taken by those religions on permissibility of ESCR itself.

In projecting the relevance of religion on life and moral status, Miller (2008, p.157) stated that, in addition to the three concepts: (i) life and moral status begins at conception, (ii) life begins at conception but moral status depends upon degree of development, (iii) personhood and moral status are social constructs; Miller has added a fourth view which is:- religious view about ensoulment as the basis of moral status, and when ensoulment occurs varies according to every religion.

The basis of religious guidance on when human life begins essentially revolves around the notion of ensoulment in Islam, Catholicism and Hinduism. From the religious perspective, ensoulment refers to the moment when a human being acquires a soul marking its individual existence and personhood. However, Buddhism does not believe in the presence of an eternal soul (Dhammananda, 2002, p.152). This makes the concept of personhood unclear. Instead, Buddhism refers to '*annata'*, the teaching of no-soul, non-self, equating to consciousness as continuation of an entity

(Dhammananda, 2002, p.155). To a certain extent, this appears similar with the concept of ensoulment.

Reflecting on pluralistic views, UNESCO IBC (2001, p.7) cautioned that the major religious position on the use of embryos in ESCR reveals stark differences on the status of embryo, and therefore only if it is defined in a broader perspective, there will be room for agreement.

The following section outlines the literature on the perspectives and positions of Islam followed by other main religions such as Buddhism, Hinduism and Catholicism on ESCR.

2.2.1 Islamic Perspectives and Positions on ESCR

In multi-religious Malaysia, Islam is the religion of the Federation as enshrined in Article 3(1) of the Federal Constitution (Fernando, 2006). However, the Constitution guarantees the freedom of other religions to be practiced freely in harmony. Based on the last census in 2010, the population in Malaysia is made up of 61.3% Muslims, 19.8% Buddhists, 9.2% Christians and 6.3% Hindus (Department of Statistics Malaysia, 2010).

Interviews were not conducted on Muslim authorities because there is consensus on the issue in the form of fatwa. Nevertheless, this section explores the Islamic responses gathered both from local and international writings pertaining to ethics of ESCR.

Islam is the youngest of the three monotheistic faiths [other two are Judaism and Christianity]; and questions about what is regarded as appropriate behaviour in Islam

need to be addressed (Sachedina, 2005). The four sources of Islamic law are the Quran, Sunnah [sayings and actions of Prophet Muhammad also known as Hadith], *Ijma* [consensus] and *Qiyas* [analogy] (Nordin, 2006).

In dealing with contemporary issues, in the absence of specific references from the Quran, and Sunnah, the Islamic scholars/jurists derive new rulings by the process of *ijtihad* [independent judgment] which is accomplished through *Ijma* or *Qiyas* in order to issue a *fatwa* (Fadel, 2012).

Along with the Shariah (Islamic laws), the procurement of judgments is dependent on reasons used in moral deliberation (Sachedina, 2005). Sachedina points out that the underlying principles and rules of practical ethical guidance should be referred to when faced with an ethical dilemma. Rispler-Chaim (1989) points out that when it comes to medical treatment, Muslims usually refer to the Shariah to decide if a treatment is acceptable within Islamic law. According to Malaysian scholars, any biotechnology applications must satisfy one of the five purposes outlined in the Shariah if it is to be deemed ethical, and one of the corresponding purposes is 'preservation of life and health' (Amin et al., 2011a). This can be applied in the ESCR context which aims to save lives and improve the health of people suffering from debilitating diseases.

The institutionalising of Islam also has significance in Malaysia's public domain. This is illustrated in the derivation of Islamic rulings or *fatwas* to address and monitor controversial issues in biomedical research and its applications that would particularly affect Muslims. *Fatwas* are formulated by various state fatwa councils as well as the National Fatwa Council after the religious scholars and authorities undergo ethical reasoning (*ijtihad*).

Malaysia's current *Guidelines on Stem Cell Research and Therapy* is based on a *fatwa* ruling from the Islamic Council (MOH, 2009a), which takes the middle-way approach. The use of surplus embryos is referred to the decision of the *fatwa* committee

dated 22nd February 2005 (Department of Islamic Development Malaysia, 2005). Accordingly, surplus embryos from IVF trials may be allowed to be used for research with the consent of the couple provided they have completed their family. However, the creation of human embryos solely for research by any means including Assisted Reproductive Technology or through Somatic Cell Nuclear Transfer (SCNT) is prohibited. This is in line with the *fatwa* issued by three Islamic Fiqh (Jurisprudence) Councils in Jeddah, USA and Jordan (Nordin, 2011).

The following section examines the Islamic positions deliberated by Islamic scholars vis-à-vis ESCR based on two principles - (i) knowledge-seeking research benefit mankind, and (ii) sanctity of embryonic life. Though there are other Islamic values such as *niat* (intention) and *mafsadah*, this study attempts to focus on the abovementioned two principles only, which are cited extensively in global writings when discussing about Islamic responses on ethics of ESCR.

(i) Knowledge-seeking research benefit mankind

Scientists conduct extensive research and investigate how stem cells can be used in the treatment of diseases and to advance knowledge on how cells develop and repair itself. This knowledge-seeking scientific endeavour for the benefit of mankind is encouraged in Islam.

Stem cell and embryo research have not faced much resistance in Arab and Islamic countries like Egypt, Iran, Turkey and Malaysia due to the nature of Islamic medical ethics (Rispler-Chaim, 2006) which encourages humans to seek knowledge. Weckerly (2002) points out that Islam's obligation to seek knowledge has led many Islamic scholars to support stem cell research.

Islam believes that knowledge emanates from God. The flexibility of Islam when dealing with biomedical innovations and the importance of saving lives in Islam is cited in most deliberations on the ethics of stem cell research (Al-Hayani, 2008) and the following verse is often quoted;

> Whosoever saves the life of one [human], it shall be as if he saved the life of all humankind [Quran 5:32].

This statement implies that saving lives of people who suffer from pain is given great importance. This can be viewed as opening the doors for ESCR. If ESCR can relieve the suffering of people, then it is denoted as 'obligatory' under *Fardu Kifayah* [societally requisite knowledge] (Siddiqi, 2002).

Hence, it becomes a duty for the scientists, the people of knowledge, to assist those in society who can benefit from that knowledge. Delivering public goods is in accordance to the principle of *maslaha*. Similarly, the use of surplus embryos in research instead of being discarded for the purpose of benefiting the society is in accordance to the principle of *maslaha* (Rispler-Chaim, 2006). Therefore, donating surplus embryos for research aimed at saving lives is a 'societal obligation'. On that note, Serour (2005) states that in Islam embryo research using surplus embryos donated by couples, is allowed for the advancement of scientific knowledge and benefit of mankind.

Prophet Muhammad is quoted as saying that God obliged humankind to find for cures without using prohibited substances (Rispler-Chaim, 2006). Islam encourages seeking remedy and treatment as stated in the Hadith *(Al-Bukhari)*, "there is a cure for every illness though we may not know it yet" (Aksoy, Elmali & Nasim, 2007). As such, the development of new treatment methods is strongly recommended and 'commanded' as long as it is not 'categorically prohibited' in accordance to Islamic

laws, and it is aimed at improving human health (Aksoy et al., 2007). As such, ESCR which aims to improve health of people suffering from debilitating diseases is allowed.

Although ESCR does not immediately result in a cure for diseases, the research itself may contribute towards a better understanding of body functions at cellular level which is valued as knowledge-seeking from the perspectives of Islamic ethics. Thus the issue is no longer about finding cures for diseases but about the 'increase of knowledge' (Ilkilic & Ertin, 2010).

Sachedina (2000) cautiously puts it that it is an act of faith to carry out ESCR if it is for the purpose of improving health:

> The will of God in the Koran has often been interpreted as the processes of nature uninterfered with by human action. Hence, in Islam, research on stem cells made possible by biotechnical intervention in the early stages of life is regarded as an act of faith in the ultimate will of God as the Giver of all life, as long as such an intervention is undertaken with the purpose of improving human health (Sachedina, 2000, p.G6).

The destruction of embryos is justified if the intention is to alleviate the suffering of people, which is interpreted as the lesser of two evils (Nor, 2010). As such, priority towards saving the lives of human adults outweighs any ethical conscience associated with the use of embryos.

The argument is if the surplus embryos, in any case, are destroyed, then there is no reason why these embryos should not be used in ESCR for the public good (*maslaha*) aimed at providing treatment for debilitating conditions (Saniei, 2012).

(ii) Sanctity of embryonic life

The fundamental question here is when life begins and whether a 5-day old embryo is considered a living entity. For that, the status of an embryo needs to be defined. The basis of religious guidance on when human life begins essentially revolves around the notion of ensoulment in Islam. The Quranic teaching about human development is as follows:

> And indeed We created man from a quintessence of clay. Then we placed him as a small quantity of liquid (*nutfa*) in a safe lodging firmly established. Then we have fashioned the nutfa into something which hangs (*alaqa*). Then We made alaqa into a chewed lump of flesh (*mudgha*). And We made the mudgha into bones, and clothed the bones with flesh. And then We brought it forth as another creation. So blessed be God, the best to create![12] (Quran 23: 12-14)

In reference to the verses, Sachedina (n.d) interprets that "perceivable life is possible at later stage in biological development of embryo when God says: "we brought forth as another creation."

Muslim scholars generally agree that ensoulment which is the 'breathing of spirit' into embryo, is what differentiates biological life from human life (Fadel, 2012). Reflecting on an ancient text, Fadel (2012) claims that it is only after ensoulment that the embryo acquires personhood. The process of ensoulment is referred as: "and breathe into him of His spirit" (Quran 32:9), and supported with a Hadith:

> Verily your creation is on this wise. The constituents of one of you are collected for forty days in his mother's womb in the form of blood, after which it becomes a clot of blood in another period of forty days. Then it becomes a lump of flesh and forty days later Allah sends His angel to it with instructions concerning four

[12] In modern terms, we can equate *nutfa* as water drop, *alaqa* refers to embryo and *mudga* refers to foetus.

things, so the angel writes down his provision, his death, his deeds, his fortune and misfortune. Then the soul is breathed into him.

Hadith - cited in (Aksoy, 2005, p.401)

Each stage of human development takes forty days, which brings the total to 120 days. In Malaysia, the above teachings have been decisive on the ruling on abortion which is prohibited after the 'third fortieth' (120^{th}) day. This is agreed by the Shafie jurisprudence and termination of pregnancy is only permissible when the mother's life is in danger or other necessities deemed in accordance with the Shariah principle which order committing the lesser of two evils (Muhammad Husin et al., 2013; Tengku Zainuddin, 2001). Some scholars imply that ensoulment occurs after 120 days. Based on that, scholars point out that abortion is allowed in Islam until end of fourth month after fertilisation (Larijani & Zahedi, 2004). If we were to apply the same concept, then we can argue that ESCR involving the destruction of 4 - 5 day old embryos is permissible.

However, for some Muslims, ensoulment takes place after 40 days (Eich, 2003). Aksoy says that the completion of certain physical forms and ensoulment takes place after 40 days of conception and he opined that the angel breathes in the soul into the embryo between 49 to 55 days of conception (Aksoy, 1998, 2005). A minority view among jurists is that ensoulment takes place by the first 40 days of embryo development, and therefore the 40-day limit is preferred to be on the safe side. Whichever way it is perceived, ensoulment indicates presence of life in an embryo and scholars generally agree that ensoulment takes place between 40 to 120 days. As such, ESCR that utilises 5-day old embryos is not unethical (Rispler-Chaim, 2006).

The plurality of views in Islamic circles about when life begins has made Islamic ethics on ESCR irresolvable. However, the legal verdict related to IVF and

stem cell research is not strictly forbidden (*haram*) but rather a lighter ruling, 'not encouraged' (*makhruh*) (Nor, 2010). Malaysian Muslims who generally belong to the Sunni school of thought have adopted the resolution of the Muslim World League which takes the majority view that ensoulment takes place 120 days after fertilisation (Nordin, 2011).

Aksoy argued that identifying the exact time of ensoulment may prevent terminating lives of 'actual human persons' (Aksoy, 1997). However, a survey on Muslim scholars, by Eich (2003), demonstrates that the majority do not consider embryo in its early developmental stage as a person.

At this point, the 'moral implications of ensoulment' as a basis for ethical debates vis-à-vis ESCR need to be explicitly discussed (Ilkilic & Ertin, 2010). Accordingly, ESCR using human embryos is ethically permissible when viewed from the vantage point of ensoulment (that the embryo only becomes human after ensoulment). Islamic tradition views ensoulment as a central value in the discourse of the moral status of an embryo. However, if we were to take that ensoulment only gives rise to a 'gradual change in the moral value of embryo' then the argument against the embryo's right to protection from beginning of its existence is hard to maintain (Ilkilic & Ertin, 2010).

Embryological knowledge is of paramount importance in establishing views on ESCR. Writers have referred to Quranic verses and the Hadith to suggest that the womb provides the environment for development of 'complete' human being and therefore embryos in the lab cannot be equated to that of a foetus in the womb (Nor, 2010; Siddiqi, 2002). Quran describes the creation of human beings within 'three fold of darkness' called uterus. The absence of uterus in IVF embryos takes away the moral rights of those embryos (Nor, 2010). Nor argues that the womb provides the environment for the development of 'complete' human being and therefore embryos in

the lab cannot be equated to that of a foetus in the womb. Siddiqi (2002) points out that the Shariah makes a distinction between actual and potential life, adding that a fertilised ovum in the petri dish has potential to grow into a human being but it cannot survive as a human being as it is not in its natural environment - the woman's womb. Siddiqi (2002) further argues that research should concentrate on surplus embryos which otherwise will be discarded.

The Quranic verse 5:32, states that:

> Whosoever has spared the life of a soul, it is as though he has spared the life of all people. Whosoever has killed a soul, it is as though he has murdered all of mankind.

The above teaching is the reason for Islamic scholars putting forth their views on sanctity of life from the point of ensoulment.

Muslim scholars agree that embryonic life is worthy of respect but lacks the full sanctity before ensoulment, and only acquires full rights after ensoulment (Fadel, 2012). Based on the concept that human life does not start until ensoulment, the majority of Muslim scholars agree that research on early embryos is allowed as long as they are produced 'legitimately', such as the surplus embryos produced legitimately between legally married couples at the infertility clinics (Fadel, 2012). However, all Islamic jurists are of the opinion that creating research embryos solely for research is impermissible (Fadel, 2012).

Ilkilic and Ertin (2010) pinpointed that based on the ethical arguments within the Islamic community, the widely accepted position among most Muslim scholars and Muslim countries is synonymous to option 3 outlined by Walters (2004)[13], that is research is permitted on surplus embryos which are no longer needed for reproduction.

In short, the Islamic position on ESCR is that using surplus embryos is allowed but creating and employing research embryos is strictly prohibited.

[13] Walters six policy options outlined in Section 1.9.5 of this study.

2.2.2 Perspectives of Other Major Religions on ESCR

Though there may be plurality of views from different school of thoughts, one can find deliberations by scholars and representatives from Islamic global community on ESCR. The same cannot be said about Buddhism and Hinduism as there seems to be a lack of resources on their positions regarding ESCR. As far as the Catholic community is concerned, there is a univocal voice among the Catholic churches worldwide adopting the stand taken by the Vatican, the official teaching authority.

The positions of the other faiths concerning science and reproductive technologies are, however, 'less categorical' and more diverse (Frazzetto, 2004). Walters (2004) noted that there is a 'centralised authority' in Catholicism from the Vatican. On the other hand, the religious texts of the Hindus and Buddhists are interpreted by religious leaders resulting in a wide range of viewpoints.

This section will examine the Buddhist, Hindu and Catholic views on ESCR, though the relevant resources are limited.

ESCR appears to be in accordance with the Buddhist tenet [beliefs] of seeking knowledge and alleviating human suffering. However, some Buddhist scholars have shown that it actually constitutes an element of harm (Knowles, 2009). Keown (2004), a renowned writer on Buddhist ethics, points out that Buddhism does not support research on human embryos that entails the destruction of human life. On the other hand, in a well-reasoned paper, Promta (2004) makes a distinction between personal and social ethics in Buddhism. The use of stem cells in research, which could mean destroying 'life', may be viewed as 'socially' moral if it is intended to cure the disease of a human person, but this contradicts with Buddhist 'personal' ethics, which emphasises that destroying the embryo is a violation of its right to life. Looking at the society at large, Promta (2004) raises the question of the conflict between the benefit of

the greater number of people and the violation of embryo's rights. Promta (2004) highlighted the 'enforced donation' found in Buddhist social ethics, in which a rape victim has the right to abort the child, and the child is perceived as an enforced donation. In the same manner, destruction of a 5-day old embryo in ESCR can be justified if it is for the sake of mankind.

The fundamental precept of Buddhism against harm and killing is also recognised by the Singapore Buddhist Federation, but supports utilising non-sentient pre-implantation embryos in ESCR if it has the intention of helping humankind (Singapore BAC, 2002, G-3-33). Note that the 5-day old embryo referred to as non-sentient entity, which means the sentience of embryonic life only comes in at the later stage of development when the consciousness of the embryo is significant. The concept of sentience and consciousness are referred by Buddhist scholars to deliberate on the presence of life in early embryos. Buddhism does not deliberate the presence of life from the notion of ensoulment. Buddhists believe in *annata* or concept of 'non-soul' (Dhammananda, 2002, p.155).

Hindu deliberations centre on the concept of *karma* and ramifications. In Hinduism, conception is believed to be the beginning of the soul's rebirth from a previous life (Knowles, 2009). Hindus believe the soul (*atman*) transmigrates from one life to another and thus the [present] life is seen as a transition between the previous one and the next (Firth, 2005). Hindu deliberations on ESCR, however, are rather limited. Hindu deliberations may be found in Swami Tyagananda's lecture where the destruction of life is held as *bad karma* unless the act is unavoidable and carried out for the 'greater good' of humanity (Tyagananda, 2002). Meanwhile, the Singapore Hindu Endowments Board cautiously allows the use of stem cells from 5-day old embryos to establish stem cell lines in culture. It accepts the use of embryonic stem cells aimed at

protecting life and finding cures for diseases, while making it clear that killing a foetus is a sinful act (Singapore BAC, 2002, G-3-2).

There seems to be no unanimous position on ESCR as far as Buddhism and Hinduism are concerned. But, Catholicism maintains the notion of sanctity of life and emphasises the inviolability of early embryonic life, thus objecting to ESCR. Catholics believe that embryo is a human life from moment of conception which deserves protection and respect (though they recognise the fact that the embryo is not a human person yet). The Catholics also hold the belief that the soul which is the sign of life is present from point of fertilisation; thus, a 5-day old embryo is a living soul. This definition came in 1869 when Pope Pius IX declared that an embryo bears full human status from point of fertilisation, superseding the medieval Church belief that an embryo acquires a soul only when it is in a recognisable human form (Lachmann, 2001). It should be noted that the Pontifical Academy for Life (2000) released the 'Declaration on the Production and the Scientific and Therapeutic Use of Human Embryonic Stem Cells'. This Declaration outlines the Catholic view of the moral status of embryonic life. As to whether it is moral to produce living human embryos to obtain stem cells, the Declaration states that the 'human embryo from the moment of union of sperm and egg is a well defined identity…and thus cannot be considered as a simple mass of cells'.

Similarly, in an address at the International Congress on Organ Transplants, (Pope) John Paul II (2000) expressed that:

> …insofar as they involve the manipulation and destruction of human embryos, are not morally acceptable, even when their proposed goal is good in itself…but rather make use of stem cells from adults…in order to respect the dignity of every human being even at embryonic stage.

The recent doctrine released by the Vatican titled *Instruction Dignitas Personae* that was endorsed by Pope Benedict in 2008 reiterates that using surplus embryos for

the purpose of treating diseases is unacceptable because embryos are treated as biological material resulting in destruction (Benedict, 2008, No 19).

However, there are some liberal Catholics in support of ESCR. Among others, a renowned ethicist, Farley (2000), representing liberal Catholics, argues that ESCR can be carried out to promote human well-being. Farley (2004) also asserts that official religious documents 'leave open the question of the moment when the spiritual soul is infused' as there are no Biblical verses which succinctly explains when ensoulment occurs. Other liberal Catholics, including Jean Porter and Christian Kummer, also appear to support ESCR (Reichhardt et al., 2004).

There is not much literature and resources deliberating in detail on the positions taken by Buddhists and Hindus on ESCR, if we were to compare with the writings by the Islamic global community. Even the religious testimonies presented at the United States National Bioethics Advisory Commission (NBAC, 2000) on ESCR, only covered the views of Islam, Catholicism, Judaism and other Christian denominations, but did not include representatives from the Buddhist and Hindu tradition.

This study therefore hopes to contribute towards knowledge building by exploring the perspectives of religious leaders on ethics of ESCR from the Buddhist, Hindu and Catholic traditions vis-à-vis use of surplus and research embryos.

2.2.3 Religious Influence in Ethical Discourse

This study attempts to explore the ethics of ESCR from the religious perspectives in Malaysia. At this point, it is important to justify why a study on religious perspectives is of paramount importance. This section outlines examples of

religious influence in public discourses, and also cites selected studies on religious perspectives.

In November 2012, there was a huge public outcry over the death of Savita Halappanavar (a female dentist of Indian origin) in Dublin, Ireland. The woman in the midst of miscarriage died of blood poisoning after she was refused abortion. It was reported that Ireland, predominantly a Catholic country could not resort to abortion. The woman who was neither Irish nor Catholic was miscarrying a few days but doctors refused to terminate the foetus, citing the presence of its heartbeat as a reason (*The Huffington Post*, 2012). This case stands as a testimony to what extent religions play a major role and influence in health policies and implementations.

In May 2013, in El Salvarado, a country populated by mostly Catholics, a chronically- ill (diagnosed with lupus) pregnant woman with a malformed foetus lost her Supreme Court bid to have an abortion though it is a high-risk pregnancy. It was reported that the country's Archbishop had requested the court not to allow the woman to have an abortion arguing that it would set precedence for more such requests. While feminist groups were outraged, Catholic organisations of that country praised the ruling (*The Telegraph*, 2013).

At this juncture, it is interesting to point out that the extent to which religious opinions influence regulation of embryo research may not be always in the form of objection. For instance, in Spain, the *Law on Biomedical Research (Law 14/2007)* allows for research on embryos for therapeutic purposes (EuroStemCell, 2012d). In a country with the majority of the population being Catholics, the law was passed ruling permissibility for the use of surplus embryos in stem cell research in Spain (Reichhardt, Cyranoski, & Schiermeier, 2004). That is worth mentioning as Catholics are against the very practice of IVF itself. In fact, Spain created its first public stem cell bank in 2004

which then sparked debate over its regulation on the use of human embryos (*The New York Times*, 2004).

Walters (2004) in his paper on intercultural perspective surveyed the public policies for ESCR in the main regions of the world including Asia Pacific, Europe, Middle East, Australia and North America. Reviewing the position of the religious traditions pertaining to ESCR, Walters noted that although there is a 'centralised authority' in Catholicism from the Vatican, there are points of disagreement between the official church teaching and the dissenting views by liberal Catholic theologians. On the other hand, in the absence of a central authority, the religious texts of the Hindus and Buddhists are interpreted by religious leaders resulting into a wide range of viewpoints.

Meanwhile, Hug (2006) in her paper presented the main arguments in favour of and against ESCR and the views of the pre-dominant religions on the use of human embryos in regenerative medicine. However, the paper does not focus on the ethical standpoints of every religion as it only presents a general review on the religious perspective on the moral status of embryo. It is also not supported by specific case study or interviews with religious authorities.

A book chapter by Jafari, Elahi, Ozyurt, and Wrigley (2008) surveys the major world religions, in atempt to address the question 'when does life begin' and how these standpoints affect research on embryonic stem cells. The chapter broadens the discussion to include a worldwide religious perspective on ESCR. It only provides a general idea about the varying religious belief systems and the perceptions on the moral status of an embryo. Hence, it is the aim of this study to extend the discussion to address the ethical issues associated to ESCR in a multi-religious country like Malaysia, with regards to the use of surplus and research embryos.

There is a paper by Knowles (2009) in a forum in *Stem Cell Network*, which surveys the standpoints of the major world religions pertaining to stem cell research. The forum does not encompass surveys on diverse opinions within one religious tradition, and neither it is supported by any findings. It is mainly based on the testimonies presented in the United States NBAC in 2000. Another report is the one by Frazzetto (2004) in the *European Molecular Biology Organisation* (EMBO) presenting in general the varying religious beliefs on controversial issues such as cloning and stem cell research. A contentious issue like ESCR has also generated discussions in the non-partisan forum on *Religion and Public Life*, which presents to its readers in the United States on the general religious positions on stem cell research (Pew Research Centre, 2008), but does not specifically relate to any study with regards to the use of surplus and research embryos.

Significant work has also been done in Asia and beyond on the religious perspectives on organ transplantation (Tai, 2009), on human cloning (Roetz, 2006; Campbell, 1997), and on genetic engineering (Pfleiderer, Brahier, & Lindpaintner, 2010).

Religious concerns are also significant in Malaysia. In an editorial write-up, Macer (2009) related his experiences in Malaysia with a number of religious and ethnic groups. Macer noted the great diversity in terms of values and principles in decision-making within these classifications (denominations). The importance of multi-religious participation in ethical deliberation has been noted as particularly important in Malaysia, by Fujiki and Macer (1998), who opined that all communities in multi-cultural Malaysia would do well to understand bioethical issues so as to participate fully in developing suitable ethical guidelines.

For instance, attention to a multitude of opinions of various faith groups in Malaysia on the ethics of organ transplant has been addressed (Robson, Razack, &

Dublin, 2010). It was concluded that addressing the religious perspectives is important so that people will be more willing to donate organs to others, first to those similar to themselves, and then to strangers at large. In 2011, the Ministry of Health of Malaysia in collaboration with Department of Islamic Development released a report deliberating on Organ Transplantation from the Islamic perspective (MOH, 2011). The permissibility of organ transplantation in Malaysia was discussed in the report. Accordingly, Islam encourages organ donation which in turn inculcates altruism in individuals and society as a whole, in offering a helping hand to mankind regardless of race and religion. In a public forum on "Organ donation from an Islamic perspective" held in Putrajaya, Malaysia in October 2014, the Deputy Health Minister said that fear, lack of understanding and religious concerns are the main reasons among the Malays for not coming forward to be organ donors. The low rate of organ donation is due to the fact that the potential donors are uncertain as to whether their religion allows organ donation (*theSun Daily*, 2014).

Malaysia is made up of 61.3% Muslims, 19.8% Buddhists, 9.2% Christians and 6.3% Hindus (Department of Statistics Malaysia, 2010). Although Buddhism does not fall into the conventional definition of a religion that believes in an all-encompassing Creator; it is one of the dominant faiths practiced in Malaysia and for this study, Buddhism is regarded as a religion. There are many denominations within the Christian faith in Malaysia such as Roman Catholic, Methodist, Anglican, Lutheran, and Presbyterian. This study has elected to explore the Catholic perspective, since it is the major denomination in Malaysia, with a structured institution and documentation. In 2010, Catholics surpassed one million, covering 3% of total population and 40% of the 2.2 million Christians in Malaysia (Herald, 2012).

Religions play a major role in formulating policies and framework. At present, the National Fatwa Council has issued its decision regarding ESCR (Department of

Islamic Development Malaysia, 2005) (refer Appendix A and B). The input from other religions has not been officially documented. Thus, it has become important that a study is undertaken in the Malaysian context to study the ethical perception of Buddhist, Hindu and Catholic leaders pertaining to ESCR.

To date, Foong (2011) has written a paper on multi-faith perspectives on ESCR. The paper included excerpts of interviews of religious leaders and scholars from the different faiths in Malaysia (generally one representative from every faith), but the responses from the interviews were not analysed in-depth according to themes. Foong also does not extend into ethical deliberations on the use of surplus and research embryos, and does not employ conceptual framework, which are developed in this study. My study therefore deals not only with the controversy surrounding ESCR whereby embryos are inadvertently destroyed during research, but it also carries ethical insights on the use of surplus and research embryos from the perspectives of religious leaders in a multi-faith society.

Hence, my study which aims to gain perspectives of the Buddhist, Hindu and Catholic leaders with regards to ESCR in Malaysia is more comprehensive.

2.2.4 Studies on Public Perception

This study aims at gathering the perception of the religious representatives on ESCR. Hence, it has become important for the researcher to look at some examples of studies on public perception – on the research method, targeted samples, and findings of those studies. Issues concerning reproductive techniques and human genetic research have spurred anxiety among both the religious groups and the public in general, throughout the world. Hence, issues related to ethical and moral implications of

emerging biological and medical discoveries are constantly addressed through public perception studies.

For instance, a survey of European public perception of biotechnology (Gaskell et al., 2000) shows that public are increasingly opposing genetically modified (GM) food but remain supportive of medical biotechnology applications. Despite the opposition to GM food, public perception for medical biotechnologies such as genetic testing and pharmaceuticals, and environmental biotechnologies such as bioremediation are positive. The survey which studied the level of support and opposition for seven applications of biotechnology (genetic testing, medicine, bioremediation, clone human cells, clone animals, GM food, GM crops) across countries in Europe, gave insights about public concerns pertaining to moral and ethical dimensions of biotechnology applications.

Besides that, ethical issues from intercultural perspective are also addressed. For instance, parental experiences and challenges coping with critically ill babies in neonatal intensive care unit were studied from the cross-cultural perspective between France and United States settings (Orfali & Gordon, 2004). The study provides insights about parents' perception and decision-making given their cultural and institutional differences.

Evolving reproductive technologies also result in ethical debates. A cross-sectional survey was conducted to study the attitudes of patients, healthcare professionals and ethicists towards ESCR and donation of gametes in Germany (Krones et al., 2006). The survey showed that infertility couples recorded positive attitudes towards donation and research using surplus embryos, whereas the healthcare professionals and ethicists are skeptical about the research involving destruction of embryos.

A public perception study was conducted to explore to what extent religious beliefs impact lay beliefs about causes of, and treatments for mental illness. Cinnirella and Loewenthall (1999) conducted the study via in-depth interviews in the United Kingdom with different religious groups comprising White Christians, Pakistani Muslims, Indian Hindus, Orthodox Jewish and Afro-Caribbean Christians. Prayer is an effective way of coping with mental illness among Afro-Caribbean Christians and Pakistani Muslim groups. There is also a fear among respondents of being misunderstood and hence the preference for a health professional from the same race or religion.

On the local front, public perception on matters concerning public health issues is not neglected. For instance, the Federation of Reproductive Health Associations Malaysia (2011) studied the issue of safe abortions by seeking the knowledge and perception of medical students and medical officers. Amin et al. (2011b) studied the level of knowledge and awareness on biotechnology by surveying the ethical perception of various stakeholders, including religious experts from the Islam, Buddhist, Hindu and Christian traditions. However, the paper did not include background information on the authority and affiliation of the religious experts, which this study provides.

In conclusion, public perception on emerging biotechnology and biomedical research, such as ESCR, is important to be addressed to facilitate implementation of policies.

Table 2.1: Summary of significant concepts from the literature review

Concept	Author(s)	Description
MORAL STATUS OF EMBRYO	Green (2002)	• Fertilisation is a process rather than an event and therefore the determination of significant point within these processes involve choice on our part
	George and Gómez-Lobo (2005)	• Since human beings are intrinsically valuable deserving full moral respect, it follows the same way from the point they come into a being, and that also includes early embryonic live coming into existence from fusion of gametes, and as such they should be accorded the full moral status and respect ascribed to inviolability of any other human beings.
	DeGrazia (2007)	• Inviolability referring to moral respect, is more of an appeal for the 'necessity of early moral protection'. One cannot resolve the issue as to whether early embryo has moral status by referring to present status of inviolability in a simple reductionist manner, because the present entitlement not to be killed does not entail past entitlement in the same manner.
(i) Moral respect for early life	Ruiz-Canela (2002)	• Respect for human beings should not be based on 'developmental view' but must be same regardless of the developmental stages.
	Hall (2004)	• An early human embryo prior to implantation does not have same moral status as a human person because it lacks morally relevant capacities.
	Fischbach and Fischbach (2004)	• Implantation of embryo in the uterine wall marks the beginning of life because the embryo is now defined as an individual as it has past the stage of possible twinning. • Until day 14 of fertilisation, the embryo has no nervous system and cannot sense pain, the embryos cannot be considered sensate before day 14. It is reasonable to consider the phase when the possibility of sensation first exists as beginning of human life.

Table 2.1, continued

Concept	Author(s)	Description
(ii) Sentience, personhood and potentiality of early embryos	Warnock (1984)	• The formation of primitive streak at 14 days of gestation is taken as one reference point in development of human individual.
	Warren (1997)	• Sentience is a being's capacity to experience pleasure and pain which provides reason for recognising moral obligations not to kill it, but it is not regarded as a sufficient condition for full moral status
	UNESCO IBC (2001)	• Since there is no possibility of implantation and the embryo has no potential to develop into a human being, it is then ethically defensible to use these embryos for therapeutic research purposes
	United States President's Council on Bioethics (2002)	• The possibility of twinning and moral significance of implantation are sound moral reasons in not to regard early embryo in the first 14 days as moral equivalent of a human person.
	George and Gómez-Lobo (2005)	• One need not have to be 'conscious, reasoning and deliberating' in order to earn full moral respect
(iii) Moral questions on use of surplus and research embryos	Warnock (1984)	• Surplus embryos may be used as subjects for research
	Steinbock (2000)	• There is no moral difference between utilising surplus embryos or research embryos for stem cell research.
	Outka (2002)	• 'Nothing is lost' principle outlines two conditions: (1) the innocent will die in any case and (2) another innocent life can be saved. Employing surplus embryos in research for therapeutic purposes is in line with the principle.
	Steinbock (2006)	• As much as creation and destruction of surplus embryos which is a very much part of IVF is justified for reproduction purposes, so is the creation and destruction of research embryos aimed to improve people's health • Neither the creation and use of surplus embryos nor research embryos 'contravene

		the respect for embryos as a form of life'
	Manninen (2007)	• Proper respect for surplus embryos is manifested by using them in research which allows their existence to have [positive] impact to the world, rather than just to discard them.

Table 2.1, continued

Concept	Author(s)	Description
ISLAMIC PERSPECTIVES AND POSITIONS ON ESCR (i) Knowledge- seeking research benefit mankind	Sachedina (2000)	• It is an act of faith to carry out ESCR if it is for the purpose of maintaining health
	Weckerly (2002)	• Islam's obligation to seek knowledge is the reason for many Islamic scholars to support stem cell research
	Siddiqi (2002)	• If ESCR can relieve suffering of people, then it is denoted as 'obligatory' under *Fardu Kifayah* [societally requisite knowledge]
	Rispler-Chaim (2006)	• The use of surplus embryos in research instead of being discarded for the purpose of benefiting the society is in accordance to principle of *maslaha* (public good)
	Ilkilic and Ertin (2010)	• Although ESCR does not immediately results into cure of diseases, the research itself may contribute towards a better understanding of body functions at cellular level which is valued as knowledge-seeking
(ii) Sanctity of embryonic life	Siddiqi (2002)	• Shariah makes distinction between actual and potential life, whereby a fertilised ovum in the petri dish has potential to grow as human being but it cannot survive as a human being as it is not in its natural environment - woman's womb
	Fadel (2012)	• Ensoulment which is the breathing of spirit into embryo, is what differentiates biological life from human life. • Only after ensoulment, the embryo acquires personhood
	Ilkilic and Ertin (2010)	• ESCR using human embryos is ethically permissible viewed from the vantage point of ensoulment

Table 2.1, continued

Concept	Author(s)	Description
PERSPECTIVES OF OTHER MAJOR RELIGIONS ON ESCR (i) Buddhism	Keown (2004)	• Buddhism does not support research on human embryos that entails the destruction of human life.
	Promta (2004)	• The use of embryonic stem cells in research, may be viewed as "socially" moral if it is intended to cure the disease of a human person, but contradicts with Buddhist "personal" ethics, whereby destroying the embryo is a violation of its right to life.
	Singapore BAC (2002)	• Buddhist Federation supports utilising non-sentient pre-implantation embryos in ESCR which has the intention of helping humankind
(ii) Hinduism	Tyagananda (2002)	• Destruction of life is held as *bad karma* unless the act is unavoidable and carried out for the 'greater good' of humanity
	Singapore BAC (2002)	• Hindu Endowment Board allows the use of stem cells from 5-day old embryos to establish stem cell cultured lines, aimed at protecting life and finding cures for diseases, while making it clear that killing a foetus is a sinful act
(iii) Catholicism	Pontifical Academy for Life (2000)	• The human embryo is a well-defined identity from the moment sperm fuses with ovum.
	John Paul II (2000)	• Manipulation and destruction of human embryos is not acceptable even if the proposed goal is good.
	Benedict (2008)	• Using surplus embryos for purpose of treating diseases is unacceptable because embryos are treated as biological material resulting into destruction.

2.3 Critical Evaluation of Literature

Most of the debates pertaining to ethics of human embryo research are centred in Western countries, such as the United States, and the United Kingdom which are secular in nature and, therefore, not applicable to country like Malaysia, which is rich in religious and cultural diversity. The current discussions are framed within the context of the West and the views debated in the literature on ethics of ESCR revolve around moral status, and criterions for moral status such as personhood, sentience and potentiality of embryo. However, it is important to note that other issues are emerging or becoming significantly important in ethical discourse surrounding hESC research, shifting the focus of ethical debate from moral status of embryo to other ethical concerns such as motivation and potential of research itself. There is limited literature concerning the ethical conundrum of ESCR in Asian countries like Malaysia, a nation which is firmly grounded on religious reasoning.

The debate on the moral status of human embryo in Western literature is also diverse. Accordingly, at one end, the argument is that the human embryo has moral status from moment of conception and, thus, worthy of protection. Therefore, research on a 5-day old embryo which entails its destruction is morally impermissible. Then, the middle-way approach is that the 5-day old embryo has special moral status but it lacks the moral capacities of a human being such as consciousness, and ability to sense pain. The moral status is said to develop gradually with the biological development of the embryo. Then, at the other end of the spectrum is the argument that a 5-day old embryo comprising around hundred cells is just a collection of cells and lacks moral status. It is this moral controversy that makes the ethical discourse surrounding ESCR both interesting and challenging.

Then, there is the 14-day rule commonly addressed in Western literature, that a human embryo is worthy of protection after day-14 of fertilisation because (i) the end of twinning around day 14 marks individualisation, and (ii) formation of nervous system around day 14 marks the possibility of first sensation which is a landmark in definition of life.

Reflecting on these interpretations on moral status of embryo, it is worth asking whether is it possible to maintain respect to surplus embryos while using them in ESCR, which otherwise will be discarded. Another point to ponder is whether it is justified to deliberately create research embryos solely for ESCR purposes. Ultimately, what needs to be addressed is whether there is any moral difference between utilising surplus and research embryos in ESCR. Fundamentally, the need to conduct research on human embryos regardless of whether it is surplus or research embryos, for the therapeutic potentials of offering treatments to various diseases, also need to addressed from the Malaysian context.

In a pluralistic society like Malaysia, the interpretations on the moral status of embryo, vary according to the religious views of the multi-faith groups. The question as to when the human embryo warrants respect and protection compel us to question when human life begins. The basis of religious guidance on when human life begins essentially revolves around the notion of ensoulment in Islam, Catholicism and Hinduism. Buddhism does not believe in the concept of an eternal soul, but refers to 'consciousness' energy. Diverse views exist within and among religious traditions on when life begins. This further resulted in varying viewpoints regarding the positions taken by those religions on permissibility of ESCR.

From the vantage point of sanctity of life, Muslim scholars generally agree that embryonic life is worthy of respect but lacks the full sanctity before ensoulment. Islamic position on ESCR is that using surplus embryos is allowed but creating and

employing research embryos is strictly prohibited. Stem cell research is also viewed as a knowledge-seeking endeavour to save lives which is encouraged in Islam for the public good. The perspectives of other main religions in Malaysia, in a similar vein, that is from the vantage point of (I) sanctity of life, and (II) research is a knowledge-seeking endeavour, need to be explored. Past researchers also have not studied the ethics of ESCR from the aforementioned vantage points. None are similar or even close to the scope that I have chosen to embark from.

At present, there is no legislation in Malaysia on matters concerning ESCR other then the *Guidelines on Stem Cell Research and Therapy* which is based on *fatwa* ruling from the Islamic council (MOH, 2009a). The input from other religions is not addressed and is sorely missing in the guidelines. Thus, it has become important to explore the perspectives of the religious groups on ethics of ESCR in Malaysia to give a comprehensive, dispassionate picture.

Acknowledging the gap, this study attempts to study the ethics of ESCR according to the religious perspectives of the major religions in Malaysia, namely Buddhism, Hinduism and Catholicism, that is to identify what are the motivational factors behind their ethical reasoning in a hope to contribute towards knowledge building in the ethical discourse of ESCR from a multi-cultural and multi-religious context.

Most studies in Malaysia are on the clinical and scientific applications of stem cells (Tan et al., 2013; Fadilah & Aqilah, 2012; Maqbool, Vidyadaran, George, & Ramasamy, 2011; Nur Fariha, Chua, Tan, Tan & Hayati, 2011; Gan et al., 2008).

Foong (2012b) made a comparative analysis of the medico-legal and ethical issues associated with ESCR in Australia and Malaysia. Foong, from the law school, evaluates the existing regulatory framework in Malaysia and recommends the adoption of a more effective regulatory model. Foong acknowledges the difficulty in regulating

stem cell research in a multi-religious country like Malaysia with varying religious perspectives. Foong's study however concentrates on recommending a suitable regulatory framework, and only a small chapter is dedicated in discussing the religious views on ESCR.

Another point to note is that past studies look within a single religious perspective. To my best knowledge, no detailed study has been made pertaining to ethics of ESCR in Malaysia, focusing on multi-faith insights with regards to the use of surplus and research embryos. This study aims to explore the thinking of religious leaders on the moral status of human embryos where the use of surplus embryos is expected to carry a different moral connotation from the use of research embryos.

Moral status accorded to human embryo based on one's understanding about human life, and the ethical debate is very much influenced by religious beliefs, making it difficult to attain consensus (Isasi, Knoppers, Singer, & Daar, 2004). The varying ethical arguments on the status of human embryo and conception of life make it hardly possible for a consensus between religions (Frazzetto, 2004), with regards to ESCR. In other words, the diverse religious views make it highly controversial to attain consensus.

With that caveat in mind, the final part of this study aims to explore the responses of the religious leaders in Malaysia on reaching a consensus with regards to ESCR, the challenges in attaining a consensus, and their recommendations on this contentious issue.

2.4 Conceptual Framework

Based on the conceptual ideas from the summary table 2.1 on significant review of literature, and evaluation of literature in Section 2.3, I formulated a conceptual framework which stands as a basic guideline in conducting interviews and collecting data.

A conceptual framework is diagrammatic, showing how the researcher wishes to go on with the study.

Specific values or domain of inquiry were identified in the conceptual framework. The two domains of inquiry or values were identified from Islamic literature namely (I) sanctity of life, and (II) research is a knowledge-seeking endeavour - serve as a guideline and as a starting point to formulate the interview questions, and to explore whether these values are also the concerns of the religious leaders from the Buddhist, Hindu and Catholic tradition, or whether there are other overriding concerns. This study extends from the Islamic ruling and extends local ethical deliberations to include the perspectives of Buddhist, Hindu and Catholic groups in Malaysia.

Questions were developed to solicit a clear understanding and views from the religious leaders on ESCR in regards to the use of (i) surplus embryos and (ii) research embryos.

See next page for the conceptual framework.

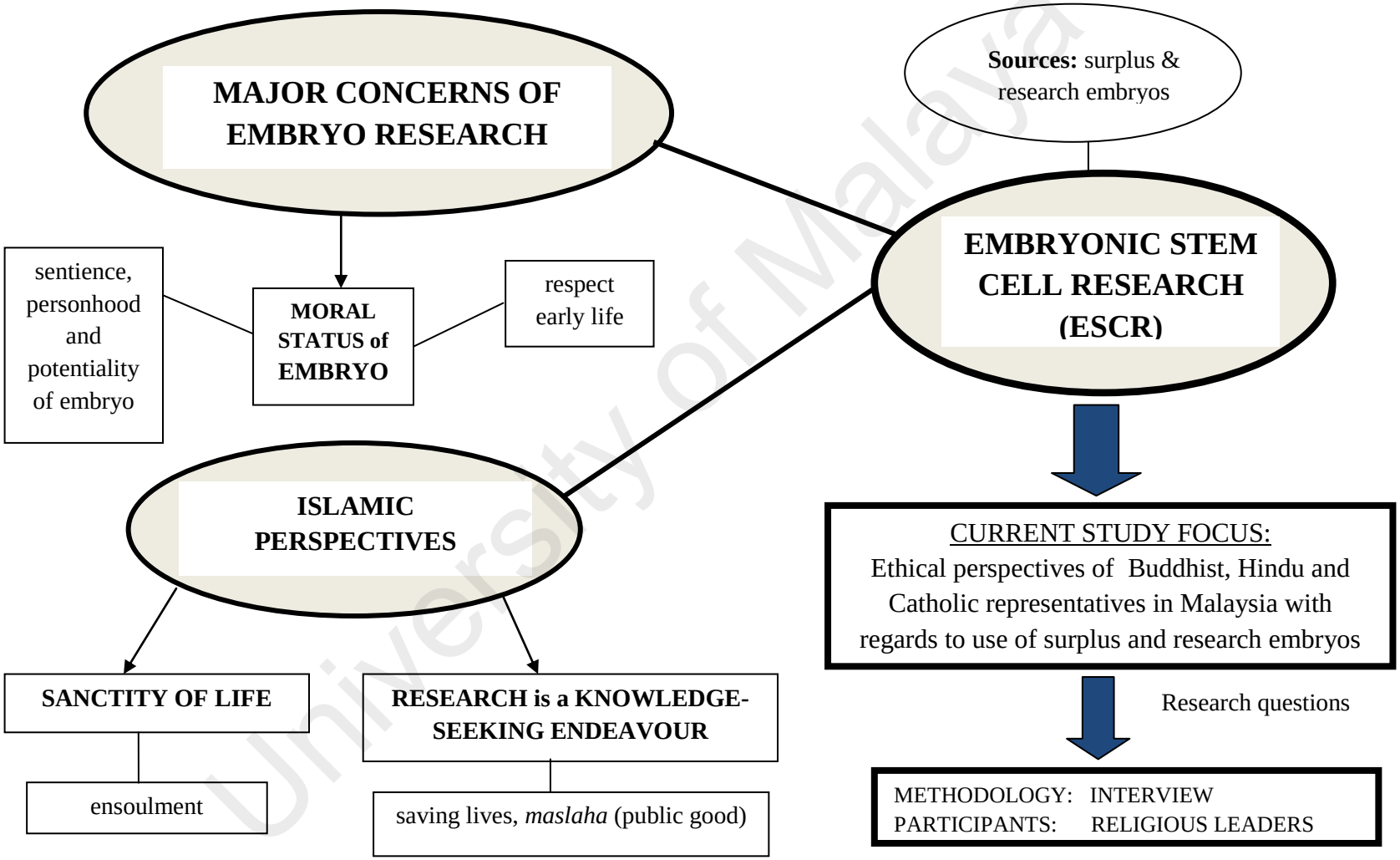

Figure 2.1: Conceptual Framework

CHAPTER 3: METHODOLOGY

This chapter explains why a qualitative study was employed, and justifies why interview was chosen as the research method. The criteria for selecting the respondents are explained. Thematic analysis, which is the method of analysis for this study, is also discussed.

3.1 Qualitative Study

A qualitative study was employed for the purpose of this research because it permits the researcher to study the selected issue in great depth and detail (Patton, 1990, p.13). Qualitative data provide depth through detailed descriptions, and direct quotations capturing perspectives of people (Patton, 1990, p. 40). In a qualitative study, the researcher is the instrument (Patton, 1990, p.14) who directs the rigor of the research and interprets meaning in context from the direct contacts with the subjects. In this case, I had face-to-face contact with the respondents.

A qualitative study also allows the researcher to gain a holistic perspective of the study. This is particularly important in this study which attempts to seek the perspectives of the local religious leaders on ethics of ESCR. A qualitative study emerges and unfolds itself with time. This researcher initiated the inquiry with specific research questions which were then used to formulate the interview guide.

One of the methods for data collection is in-depth interviews. Data from interviews consist of direct quotations from respondents about their experiences and knowledge (Patton, 1990, p. 10). The advantage of an in-depth interview is that it allows a more detailed analysis. In this study, the views of the respondents on the ethics of ESCR were obtained from the in-depth interviews.

3.2 Organising Interviews

I employed semi-structured, in-depth, face-to-face interviews with the respondents, which consist of key questions to help define areas to be explored, but which also allow significant space to diverge so as to pursue an idea in more detail.

Semi-structured interview provides reliable qualitative data (Cohen & Crabtree, 2006). It is the most widely used interviewing format for qualitative research, and it is organised around a set of open-ended questions, whereby new questions emerge as the interviewer and interviewee converse (DiCicco Bloom & Crabtree, 2006). Semi-structured interviews are carried out to gain holistic view, and to document public perception because they offer flexibility to approach different respondents differently while covering the same core issues (Noor, 2008).

A semi-structured interview is conducted with the help of an interview guide which provides a list of questions and specific topics of interest but it does not restrict the conversation. It gives the respondents the freedom to express their views in their own terms (Cohen & Crabtree, 2006). Hence, it allows this researcher to seek clarifications and explanation as the respondents relay their religious perspectives with regards to ESCR in Malaysia.

The interviewer (researcher) may ask questions in a particular order or may move back and forth based on the responses given by the interviewee (Ayres, 2008a). In either way, the interview guide is formulated based on research questions and the conceptual framework of a research (Ayres, 2008a).

Research interview attempts to understand the world from the subjects' point of view (Kvale & Brinkmann, 2009). The seven stages of interview listed by Kvale & Brinkmann (2009, pp. 19-20, 63, 102) were closely comprehended and carried out. Accordingly, the purpose and concept of the interview is thematised (1), the study is designed (2), interviews conducted based on an interview guide with a reflective

approach (3), audio recorded interviews transcribed into a written text (4), findings of the interviews analysed according to purpose of study (5), interview findings are ascertained (6) and the findings are communicated in a readable form (7). These steps ensured that interview serve as an effective research method in seeking the perspectives of the religious leaders.

Reichhardt et al. (2004) points out that, polls on ESCR often do not mention that the research requires destroying human embryos. For this study, prior to the interviews, the researcher had made it very clear to the respondents, that human embryos are inevitably destroyed in ESCR in order to harvest stem cells. In other words, a brief explanation on the scientific background of ESCR was given to respondents so as to prevent respondents from being misguided or misinformed. The respondents understood the scientific concept of ESCR and clarified all their doubts/questions before interviews were conducted. The Catholic respondents, in particular, were well-versed in issues concerning ESCR, as they have been keeping themselves updated about the matter, in line with the standpoint and declaration made by Vatican.

Informed consent is an important ethical guideline to be adhered to in conducting interviews. Informed consent involves the process of informing the respondents about the purpose of the study and obtaining voluntary participation (Kvale & Brinkmann, p. 70). The respondents were first approached and informed about the background and aim of my research. I made sure that all my interviewees gave prior informed consent and signed the form agreeing to participate in this study (as appended in Appendix D). The interviews which were conducted between May to December 2012 were in English and audio-recorded. The duration of each interview lasted for one hour to one and a half hours.

3.3 Interview as the Research Method

This section justifies why interview is regarded as the appropriate method to study the ethical perception of the religious leaders.

Interviews are mostly employed to study the perception of different groups of people. Attitudes towards ethical issues are also studied via interviews. For instance, Jones and McMahon (2003) studied the public thinking about stem cell research and pre-implantation genetic diagnosis (PGD) via semi-structured interviews, using open-ended questions. They concluded that the lay knowledge on stem cell research is more complete than the knowledge on PGD.

Interviews have been employed to explore the recent developments in the field of medicine. For example, Brazil has been credited as having the world's largest stem cell clinical trials for heart disease. Hence, a comprehensive study was carried out with experts in Brazil, exploring the current activity, motivations and challenges in the field of regenerative medicine via semi-structured interviews (McMahon, Singer, Daar, & Thorsteinsdóttir, 2010).

In Sweden, interviews were conducted with participant and non-participant mothers in a neo-natal screening project. Respondents were asked open-ended questions to gain their opinions on ethical issues concerning surrogacy and biobanks (Gustafsson Stolt, Liss, Svensson, & Ludvigsson, 2002).

In the United Kingdom, semi-structured interviews were carried out with three groups of patients on issues of consent and feedback in a genetic breast cancer epidemiological study (Richards, Ponder, Pharoah, Everest, & Mackay, 2003). The study provided insights and personal views from the women participants.

Interestingly, in-depth interviews are also conducted to study the attitude of religious scholars towards social issues. For instance, in-depth interviews were

conducted with Muslim scholars in Nigeria to study the knowledge, perception and attitude of Islamic scholars towards reproductive health programs (Mairiga, Kyari, Kullima, & Abdullahi, 2007). The interviews revealed that the scholars had low level of understanding about reproductive health programs, but nevertheless expressed both their support and also reservations for such programs.

In another study, the spiritual needs of patients with life-threatening diseases such as lung cancer, and heart failure, were explored via in-depth interviews to assess the influence and practice of religions. The results show that spiritual experiences were significant in the last years of the patients' lives when it comes to seeking meaning in life (Murray, Kendall, Boyd, Worth, & Benton, 2004). The study highlighted the need to incorporate spiritual needs in healthcare.

Thus, it is evident that in-depth, semi-structured interview is the most effective mode of inquiry to seek the perception of public or segements of society, especially on matters concerning public health. That is why semi-structured interviewing is employed in this study to seek the perception of religious leaders on ethics of ESCR.

3.4 Interview Guide

An interview guide provides the framework within which the interviewer develops and sequence questions, and decides which information to pursue in depth (Patton, 1990, p.284). The interviewer may ask questions in a particular order or may move back and forth based on the responses given by the interviewee (Ayres, 2008a). Either way, the interview guide is formulated based on research questions and the conceptual framework of a research (Ayres, 2008a).

The interview guide comprises prepared questions which serve as a general guideline. It has a list of key questions, but does not restrict the flow of conversation with the respondents. Further probing and follow-up questions may be necessary during the interviews.

Published literature comprising journal articles was referred upon to develop the research questions for this study. Within the Western context, the focus of the literature is on moral status of embryo (DeGrazia, 2007), which is deliberated further in the context of (i) moral respect for early life (Fischbach & Fischbach, 2004; Hall, 2004); and (ii) sentience, potentiality and personhood of early embryos (George and Gómez-Lobo, 2005). From the literature on Islamic perspectives, the values on (I) sanctity of life (Ilkilic & Ertin, 2010; Fadel, 2012) and (II) research is a knowledge-seeking endeavour (Weckerly, 2002; Rispler-Chaim, 2006), were explored.

Based on the research questions and literature review, specific values and domains of inquiry were identified to develop the conceptual framework in Section 2.4. The values in the conceptual framework supplemented with research questions serve as guidelines in developing the interview guide.

The interview was structured and formulated based on two domains of inquiry or values which are: (I) Sanctity of life, and (II) Research is a knowledge-seeking endeavour. These two domains are deemed important in the Islamic ethics of ESCR, and therefore were applied in this study to explore the perspectives of the Buddhist, Hindu and Catholic leaders. Under these two domains, questions were then formulated comprising issues like moral status, sentience and potentiality of embryo, concept of saving lives, and public good, with regards to use of surplus and research embryos in ESCR.

The interview guide (as appended in Appendix E) was formulated and feedback was solicited from the medical ethics expert in early May 2012 before finalising it.

The interview guide comprises three parts, which are aligned with the objectives of this study as shown in the table below:

Table 3.1: Objectives of study aligned with interview guide

Objectives of study	Part of interview guide
1. To explore the ethical considerations pertaining to Embryonic Stem Cell Research (ESCR) in Malaysia specifically from Buddhist, Hindu and Catholic perspectives.	Domain of inquiry: **Part I:** Questions on sanctity of live
2. To investigate the ethical viewpoints of the Buddhist, Hindu and Catholic leaders with regards to the use of the two sources of human embryo - surplus embryos and intentionally created research embryos for ESCR in Malaysia.	**Part II:** Questions on research is a knowledge-seeking endeavour
3. To examine the fundamental arguments and standpoints that arises from the Buddhist, Hindu and Catholic faiths pertaining to ESCR, with regards to obtaining consensus in Malaysia.	**Part III:** Questions on general consensus between religious groups on ESCR

The last part of the interview, Part III, was aimed at seeking the perspectives of religious leaders pertaining to gaining consensus on ESCR in Malaysia. Why is it important to seek consensus in a multi-faith setting? UNESCO IBC (2001, p. 13) recognises the need to debate the subject on ESCR at national level to enable expression of broad range of views, and wherever possible to allow a consensus on the limits of

permissibility of ESCR. Moral status accorded to human embryo based on one's understanding about human life, and the ethical debate is very much influenced by religious beliefs, making it difficult to attain consensus (Isasi et al., 2004). The varying ethical arguments on the status of human embryo and conception of life make it hardly possible for a consensus between religions (Frazzetto, 2004) with regards to ESCR. In other words, the diverse religious views make it highly controversial to attain consensus. With that caveat in mind, the final part of this study aims to explore the responses of the religious leaders in Malaysia on reaching a consensus with regards to ESCR.

3.5 Reliability and Validity

Reliability refers to consistency of research findings while validity refers to whether a method employed investigates what it is purported and intended (Kvale & Brinkmann, 2009).

The validity and reliability of data depends to a great extent on the 'methodological skill, sensitivity, and integrity of the researcher' (Patton, 1990, p.11). In a qualitative study, the researcher is the instrument. Therefore, validity in qualitative data depends on the skills, competence and rigor of the researcher (Patton, 1990, p.14).

Measures were taken prior to interviews to ensure the reliability of the data, such as soliciting feedback from the medical ethics expert on the formulated interview guide, and ensuring the interview questions are open-ended. Open-ended questions prevent 'pre-determined responses' and allows the respondents to respond in their own terms (Patton, 1990, p.295).

During interviews, reliability is further strengthened by making sure that interview questions are carefully worded. I also took down notes during the interviews, and kept a file record of all the interviews for referencing and analysis. The transcript of every interview was filed to assist this researcher in conducting the following interviews, and to ensure the consistency of the research. Other details of the interviews (place, time and name of interviewee) were also filed.

As the sole interviewer for this study, as pointed out by Patton (1990, p.285), I ensured that the interviews were focused and the variations among the interviews conducted were minimised. Though the audio recorder serves as an aid, I remained attentive and focused to steer the direction of the interview and to probe further to obtain valuable views from the respondents.

To ensure the quality of the interviews, this researcher had taken measures as pointed out by Kvale and Brinkmann (2009, p.164), which are:

(i) to keep the interview questions precise and seek clearer answers from respondents

(ii) to ensure spontaneous, rich and relevant answers from respondents

(iii) the interviewer follows up and clarifies meaning of the views expressed by respondents

The period after an interview is conducted is pertinent to the rigor and validity of qualitative study (Paton, 1990, p.352). The following measures were taken to ensure the validity of the data such as:

(i) Audio recordings were checked to ensure they function properly after interviews

(ii) Audio recordings were cross-checked with notes taken down during interviews to make sure the data make sense and also to review the quality of information gathered from respondents

(iii) The respondents were contacted for clarification if there is any uncertainty, over the telephone or via email

(iv) The recorded interviews were immediately transcribed - reflecting upon the data, and writing down all the necessary observations noted during the interviews, and this is done while it is still fresh in the researcher's mind.

3.6 Purposeful Sampling

For the purpose of this study, purposeful sampling was employed. This is because purposeful sampling allows selecting 'ínformation-rich-cases' from whom the researcher can learn issues of central importance for the purpose of research (Patton, 1990, p. 169). Purposive sampling enables us to study a 'certain cultural domain with knowledgeable experts within' (Tongco, 2007).

Sample is selected based on the background requirements which fit best the purpose of this research. The religious leaders from the highest authority identified as valuable resources were selected as participants of this study. They were selected, in view of their vast experience and knowledge and their significant contributions within ethics committees, and inter-faith council meetings and dialogues.

For example, when I approached the Malaysia Hindu Sangam (the official Hindu body of the country), upon the directive of the President, the secretary gave me

names and contacts of those who have been playing active roles in inter-faith council meetings. I later contacted the relevant persons and arranged interviews with them.

Similarly, when I approached prominent clergy members and Catholic priests, they told me to contact Father Clarence (one of the interviewees), citing him as the authority for Church teachings on biomedical ethics in Malaysia. Later, Father Clarence gave contacts of other Catholic priests, whom I pursued for interviews.

At present, there is no official institutional response or any indoctrination of values on the issue of ESCR in the Buddhist and Hindu communities. As such, the institutions are largely shaped by the views of the religious leaders. These leaders are the authorities representing their respective religious communities, whose views are often sought in public review meetings, and inter-faith dialogues on various ethical issues such as abortion, IVF, and organ donation.

Within the Buddhist tradition, an interview was first conducted with a Buddhist leader at the office of a Buddhist association. After which, I obtained contacts of other prominent Buddhists leaders. I also approached the committee of the Maha Vihara Buddhist Temple and Sri Lanka Buddhist Temple (both renowned Buddhist shrines in Malaysia, governed by the Chief monks of Malaysia), where I was directed to meet the relevant religious authorities.

All 11 respondents were chosen from the highest echelon of each religion, comprising four Buddhist monks and leaders, four Hindu leaders and three Catholic priests. The respondents represented their respective religious bodies, which participate in the Malaysian Consultative Council of Buddhism, Christianity, Hinduism, Sikhism and Taoism (MCCBCHST) - the national authority and umbrella body for all the faiths in Malaysia, except Islam.

Ten interviews were conducted face-to-face, and one interview via email because of the difficulty in arranging for an appropriate date for an interview with a

diocesan priest at the Johor Diocese located 350 kilometres down south of Kuala Lumpur. Upon email directive from Bishop Paul Tan, the Bishop of Malacca-Johor Diocese (MAJODI), I corresponded with my respondent, Father Michael Teng, one of the Catholic priests at MAJODI. The Diocese located at southern region of Penisular Malaysia administers 20 parishes in two states. Interview was first conducted via email on 28th November 2012, and later I had a face-to face interview on 9th June 2013 at La Salle Petaling Jaya Provincial House in the state of Selangor.

3.7 Sample Size

There is no strict criterion for sample size as it depends very much on the purpose of inquiry, what the researcher wants to know, and what can be gathered with available resources (Patton, 1990, p. 184). The scope of study, nature of the topic and quality of data also determine the sample size (Morse, 2000). To the question of how many interviews are enough, Baker and Edwards (2012) surmised that 'it depends' because of the need to take into account not only the methodological and epistemological considerations, but also other 'outside factors' like difficulty in accessing the participants.

In this study, the purpose of interview was to seek the religious perspectives pertaining to ESCR in Malaysia. For every faith, the leaders from the highest authority were identified by their respective religious councils. The availability of religious leaders who also had a good understanding on the science of ESCR was very limited. Due to exhaustion of resources upon reaching the highest authority, a large representative sampling was not possible.

However, a total of 11 respondents were interviewed; four Buddhist monks and leaders, four Hindu leaders and three Catholic priests. Since there is a consistent

viewpoint among the Catholic leaders, three Catholic priests from the highest authority were reached and interviewed, as compared to four respondents from the Buddhist and Hindu institutions. Although the sample size is modest, it effectively focuses on the high level leaders representing Buddhist, Hindu and Catholic institutions, and has generated a series of original empirical data.

Interviews were not conducted on Muslim authorities because there is consensus on this issue in the form of *fatwa*, in view of the fact that Muslims in Malaysia formally belong to the Sunni-Shafie school of thought who have adopted the standpoint to allow the use of surplus embryos in stem cell research.

3.8 Profile of the Respondents

The religious leaders who participated in this study – are the interviewees – and they are referred as respondents. The profile of the respondents is given below. For the purpose of analysis and for convenience, the religious leaders are referred with labels in the analysis section. The Buddhist respondents are labeled BR, the Hindu respondents HR, and the Catholic respondents CR. However, the profile of the respondents given below is not in any particular order to ensure the anonymity of the leaders when referring to their respective views presented in Chapter 4, 5 and 6.

3.8.1 Buddhist Representatives

Note: All Buddhist representatives are from the Theravada school of thought, the major branch of Buddhism.

1. Dato'Ang Choo Hong

Dato'Ang Choo Hong is a regular *Dhamma* speaker who gives talks at various Buddhist temples and universities throughout Malaysia. He also presents papers at international Buddhist conferences. He is currently the President of the Malaysian Buddhist Research Society, Advisor to the Buddhist Missionary Society Malaysia, Consultant to the Young Buddhist Association of Malaysia (YBAM) and Vice Chairman of *Yayasan Belia* Buddhist Malaysia (YBBM). Dato' Ang has also authored several books including *Perspectives of Buddhism, Religious Life in Contemporary Society*, *For the Love of Buddhism*, and *Little Stories of a Great Monk*. His latest book is *I Speak the Truth*.

2. Venerable *Bhikunni* (female nun) Bodhicitta

Venerable Bodhicitta is a Buddhist nun at Maha Vihara Buddhist Temple, located in Brickfields, Kuala Lumpur. Founded in 1894 by Sinhalese community, it is one of the oldest temples in Malaysia. Upon my request to interview the person-in-authority in Maha Vihara temple, I was directed to meet Venerable Bodhicitta, who actively participates in inter-faith dialogues worldwide (i.e. in Melbourne).

3. Dr Phang Cheng Kar

Dr Phang was the President of the Buddhist Society at University Putra Malaysia and St John's Institution. He is author of *Don't worry, Be happy* and *Don't worry, Be healthy – A Buddhist Guide for Health and Healing*. He is a volunteer at the *Sentul* Buddhist Temple Free Medical Clinic as well as the founder and chairman of the Malaysian Buddhist Mental Health Association (BMHA). He gives *Dhamma* talks and presents papers in inter-faith meetings.

4. Venerable Chief Bhante B Sri Saranankara

Venerable Bhante B Saranankara has been serving the Sri Lanka Buddhist Temple in Sentul, Kuala Lumpur since his arrival in Malaysia in 1984. He initiated the 'Buddhist *Novitiate* Program' at that temple and started the *Maha Karuna* Buddhist Society in the year 2001. In 2003, Bhante established the *Maha Karuna* Compassionate Home, a senior citizens home which also provides hospice services. On 5th May, 2006, Bhante formed the *Yayasan Maha Karuna* to serve the needy irrespective of race or religion. Bhante who has assisted in the formation of numerous Buddhist organisations and temples is the Spiritual Advisor to the following Buddhist organisations: *Siri Jayanti* Association, *Siri Jayanti* Welfare Organisation, *Maha Karuna* Buddhist Society, *Kinrara* Metta Buddhist Society, Young Buddhists Association of Malaysia (Kuala Lumpur & Selangor, State Liaison Committee), *Yayasan Belia* Buddhist Malaysia, *Shah Alam* Buddhist Society, *Kuching* Buddha *Dhamma* Society, *Bandar Utama* Buddhist Society, *Selayang* Buddhist Association, *Sandakan* Buddhist Society, *Limbang* Buddhist Study Group, *Upakara Kalyana Mitta* Buddhist Association and *Loka Mitta* Buddhist Fellowship Malaysia. On 29th January 2007, the Supreme Council of the *Maha Sangha of the Malwatu Maha Vihara, Malwatta Chapter of the Syamopali Maha Nikaya* of Sri Lanka conferred the honorary title of "Sangha Keerthi Sri" upon Bhante B. Sri Saranankara Nayaka Maha Thera (Chief Monk of the Sri Lanka Buddhist Temple, KL) and appointed him as the Chief *Adhikarana Sangha Nayaka* of Malaysia [Chief High Priest (Judiciary) of Malaysia].

3.8.2 Hindu Representatives

5. Dr M. Bala Tharmalingam

Dr M. Bala Tharmalingam is the former Deputy President and current central council member of the Malaysia Hindu Sangam, MHS (official body for Hindu affairs in Malaysia). He is also the Executive Council Member of the Malaysian Consultative Council of Buddhism, Christianity, Hinduism, Sikhism and Taoism, MCCBCHST - the Malaysian Inter-Religious Council registered in 1983. In addition, he is also the Deputy President of *Koperasi* Hindu Sangam Malaysia, and a well-known speaker on Hinduism and Inter-faith Dialogue Sessions.

6. Dr Balakrishnan Kandasamy

Dr Balakrishnan Kandasamy has been active in Malaysia Hindu Sangam (MHS) for over 28 years. He first joined the MHS in 1983, and was given the task of propagating religious knowledge to the public through workshops, seminars, camps, and lectures at temples and universities. He was the General Secretary of MHS in 2008. At present, he is a life member of MHS and has a centre in Klang named "Nallavar Maiyam" organising talks, seminars and prayers.

7. Dr Thilagawathi Kanagaretnam

Dr Thilagawathi is one of the two Vice Presidents of the century-old Sri Kandaswamy Temple, Kuala Lumpur. She is the President of the Malaysian *Arulneri Thirukkoottam*, Kuala Lumpur, and also a member of the Advisory Board of the Malaysia Hindu Sangam (MHS). She has been a life member of MHS since 1980s. She has given religious talks all over Malaysia and presented research papers on religion at national and international conferences, and authored books. Dr Thilagawathi has also

contributed to *Encyclopedia of Malaysia: Religions and beliefs*. At present, she has a weekly column in the four Tamil local dailies on the Hindu *Dharma* of forty *samskaras*.

8. Datuk A. Vaithilingam

Datuk Vaithilingam is a prominent public figure well-known for his works in Hindu religious affairs as well as other societal work. A retired Principal Assistant Director of Schools, Datuk Vaithilingam is also the former President of MHS from 1996 to 2009, and its current advisor. He was also the former Vice President of the World Hindu Congress, former President of Malaysian Consultative Council for Buddhism, Christianity, Hinduism, Sikhism & Taoism (MCCBCHST), and former Vice President of Malaysian Aids Council. At present, he expresses his views related to Hindu affairs via the local media and seminars.

3.8.3 Catholic Representatives

9. Reverend Father Albert Tan

Father Albert was in charge of the ministry of street children, and spiritual advisor and counselor for drug addicts at rehabilitation centres, and national speaker for HIV-related events. Father Albert was ordained in 2005, and then underwent theology training in Canada. He was the Assistant Parish Priest for 4 years (2009 – 2012) and then installed as Parish Priest in January 2012 at St. Francis Xavier Church – the Catholic Church at Jalan Gasing, Petaling Jaya, in the state of Selangor.

10. Father Dr. Clarence Devadass

Father Clarence is the Catholic Priest of *Archdiocese* (ecclesiastical territory) of Kuala Lumpur. At present, he is also the Director of Archdiocesan Pastoral Institute, Kuala Lumpur; Director of Catholic Research Centre, Kuala Lumpur; Editor of Catholic Asian News, Kuala Lumpur; and Member of the Office of Theological Concerns of the Federation of Asian Bishops Conference. Father Clarence is the spiritual advisor to the Catholic Doctors Association of Malaysia and authority for Church teachings in medical ethics. On 29th March 2014, the Holy See and Archdiocese of Kuala Lumpur appointed Father Clarence as 'consultor' to the Pontifical Council for inter-religious dialogue.

11. Father Dr. Michael Teng Woon Peng

Father Michael received his seminary in College General, in the state of Penang. He started his ministry in 1998. Since his ordination, he has served as 'Diaconate-in-action' from May 1998 to May 1999, Assistant Parish Priest, Parish administrator, and Head of Diocesan Bible Ministry from June 1999 to June 2002. He received his theology training at the Alphonsian Academy, Rome, from 2002 to 2010. Father Michael was appointed as the Executive Secretary of Regional Bishop's Conference in 2010. At present, Father Michael is the priest at Malacca-Johor Diocese (MAJODI) located, and in-residence priest at the Church of St. Joseph, both located in the south of Penisular Malaysia in the state of Johor.

3.9 Method of Analysis

Data analysis involves making sense of the respondents' input, looking for patterns and integrating them (Patton, 1990, p.347). According to Merriam[14] (1998, p.155), the data analysis is carried out simultaneously with data collection in qualitative research, so that the researcher gets familiarised with the context.

Transcribing the interview recordings manually allows the researcher to gain familiarity and deeper insight into the data (Corden & Sainsbury, 2006). The audio recordings were transcribed verbatim - word by word by the researcher (who is also the interviewer). On average, an hour of interview took about six hours to be transcribed in full. Transcripts were then checked against audio recordings for 'accuracy'.

Thematic analysis, which captures the views, emotions, experiences and concerns of the participants, is employed in this study. Examples of studies on ethics and perception which used thematic analysis include: analysis of stem cell therapy patients' blogs (Rachul, 2011), the ethical perspectives of the scientists on stem cell research gathered via focus group interviews (Longstaff et al. 2009), the ethical differences between donation of fresh and frozen embryos gathered from scientists and medical staff in United Kingdom (Ehrich, Williams & Farsides, 2010), the emerging themes in the discourse on gendered communication within two online cancer support groups (Sullivan, 2003), and the emergent themes from the analysis on the healthcare and health impacts of the migration experiences (Elliott & Gillie, 1998).

Thematic analysis is a 'method for identifying, analysing, and reporting patterns' from the data (Braun & Clarke, 2006, p.6). Thematic analysis enables the researcher to immerse into the large volume of data, to organise and to focus on interpretations (Lapadat, 2010). According to Lapadat (2010), interview transcripts are among the qualitative data which can be analysed through thematic analysis. It

[14] The author, Merriam S.B. has revised and expanded her work through updated publications in 2009 and 2015. However, as far as I know, there are no critiques on Merriam's recommendation, in this 20 years.

involved identifying the 'cultural meaning', and then coding them into themes and interpreting the overarching patterns across data (Lapadat, 2010).

I made significant reference to a paper by Braun and Clarke (2006), in helping me frame the themes for this research. According to Braun and Clarke (2006), thematic analysis goes beyond organising data, as it involves description and interpretation of various aspects of a research topic. It also allows the researcher to report experiences and meanings of participants within a society, and searching for 'repeated patterns of meaning' across data.

One of the advantages of thematic analysis is its flexibility which allows comparison of similarities and differences across the data (Braun & Clarke, 2006). Thematic analysis seeks 'patterns of commonality' and aspects that account for differences among the respondents (Ayres, 2008b). This method of analysis is apt for this study as the aim of one of the research questions is to study the similarities and differences of the standpoints of religious leaders within the same faith and between faiths on ESCR. A theme highlights a significant patterned response within the data in relation to research questions (Braun & Clarke, 2006). The researcher plays an active role to determine what a theme is, and thus thematising takes place throughout the study. The researcher's discretion is important to determine the theme (Braun & Clarke, 2006). Accordingly, there are no hard-and fast rules as to how thematic analysis can be conducted, as it is a flexible method.

The six phases of analysis listed by Braun & Clarke (2006) - (i) familiarising with data, (ii) generating initial codes, (iii) searching for themes, (iv) reviewing themes, (v) defining themes, and (vi) preparing report - were followed closely to organise the data obtained from the interviews.

A good thematic analysis ensures the data interpreted is consistent with the research framework, and the theme is consonant with a central idea (Braun & Clarke,

2006). According to Ryan and Bernard (2003), theme identification is fundamental in qualitative research. It includes laborious, line-by-line scrutiny of transcripts. Through inductive approach, themes are derived from the data. In a verbatim text that is rich in narratives, researchers may look for repetitions of key ideas, search for similarities and differences across data, or mark and sort out ideas that can be clustered together (Ryan & Bernard, 2003).

For analysis purpose, this researcher numbered the lines of the transcripts, and examined them by marking and highlighting segments of the conversations, and searching for individual ideas. Then, the key ideas referred to as codes were grouped and clustered into conceptually similar categories, called themes. Three themes were identified from the data, which will be discussed in Chapter 4.

Coding involves attaching one or more keywords to a text segment (Kvale & Brinkmann, pp. 201-202). According to Braun and Clarke (2006), the coding process has to be thorough and comprehensive to generate themes based on vivid examples of data extract. In this study, the interview excerpt (verbatim) is the data extract. Relevant extracts need to be collated to generate themes that are 'internally coherent and distinctive'.

This study only deals with general coding to derive the themes, and does not include the different levels of coding described by Corbin and Strauss (2007). Precisely, what is important is the final output of the analysis 'contains an account' to answer the research question (Braun & Clarke, 2006).

Themes are derived 'from our thinking about data and creating links as we understand them' (Ely, Vinz, Downing, & Anzul, 1997, pp. 205-206). The same approach was applied in this study in coding the data extracts and categorising them into themes. As far as possible, the researcher has attempted to 'offset personal bias and subjectivity' when making sense of the data, as recommended by Burnard (1991).

When data from the semi-structured interviews is subjected to thematic coding, the researcher begins the analysis with themes known to or anticipated by the researcher (Ayres, 2008b). According to Ayres, the codes may come from the literature review or conceptual framework. That precisely explains the way thematising was carried out.

In this study, based on the recurrent issues reviewed in the literature and the conceptual framework, two domains of inquiry were identified, which were also the values underscored in Islamic literature: (I) sanctity of life and (II) research is a knowledge-seeking endeavour. The interview questions were formulated based on the two domains and responses were gathered to ascertain whether those two are also the concerns of the Buddhist, Hindu and Catholic respondents, or whether there are other emerging and overriding concerns.

The coding process across the data allowed me to learn if there were other themes which could be generated from the data. In Chapter 4, we will see that another two themes were generated from the data, as a result of recurrent patterned ideas, which were the focus of the Buddhist and Hindu religious leaders.

In conclusion, a qualitative study allows the researcher to explore the diversity of values in a multi-religious society. Semi-structured interviews enabled the researcher to explore the varying viewpoints of the religious leaders on ESCR. The interview data are then subjected to thematic analysis - an appropriate and flexible method of analysis. In this study, thematic analysis enabled the researcher to identify themes (including emergent themes) which represent the ethical concerns and perception of the religious leaders on ESCR, and thus forms the core of this study.

CHAPTER 4: ANALYSIS OF DATA

4.1 Deriving themes

For analysis purpose, I constructed tables placing the relevant data extracts, along for what they were coded for, to derive the themes. The codes were only for the purpose of assigning themes. The different codes were analysed to form overarching themes, and represented in a form of a thematic map that 'conceptualises the data pattern and relationship', as illustrated by Braun and Clarke (2006).

Verbatim quotes are illustrated in the analysis tables to conceptualise the themes, and selected verbatim quotes are also presented when discussing the findings. The purpose of presenting verbatim quotes in the discussion is to deepen understanding and enhance readability as well as to present the subject supported by evidence and explanation (Corden & Sainsbury, 2006). In addition, presenting verbatim quotes allows readers to understand why the respondents had particular views or perspectives through their choice of words (Corden & Sainsbury, 2006). In this study, the ethical perspectives on ESCR are presented in verbatim and reported as precisely as they were voiced by the respondents.

The analysis table helps to chart the thematic map, and to support the discussion with succinct excerpts of the interviews. Table 4.1 illustrates the thematic coding of the data extract to assign the first theme, Table 4.2 to assign the second theme, and Table 4.3 to assign the third theme of this study. Each analysis table is followed by a thematic map.

This section on analysis of data will address the first objective of the study, which is to explore the ethical considerations pertaining to ESCR in Malaysia specifically from the Buddhist, Hindu and Catholic perspectives.

The first two parts of the interview guide are framed from the vantage point of (I) sanctity of life, and (II) research is a knowledge-seeking endeavour. However, this section will also identify the overriding concerns by the religious leaders.

Three major ethical concerns or values were identified from the interview sessions. To ensure a structured, in depth and critical discussion, the responses are grouped according to these three values, henceforth denoted as 'themes'. The first theme is the sanctity of life. The second theme is the religious principle of 'do no harm', and finally, the third theme is the notion of 'intention of the research'.

Although the researcher started the interviews investigating whether the two domains; (I) sanctity of life and (II) research is a knowledge-seeking endeavour - are of concern to the Buddhist, Hindu and Catholic leaders; the findings however pointed out that besides sanctity of life, there are other overriding concerns identified as the principle of 'do no harm' and 'intention of the research'. This adds novelty to the study. The findings suggest that the Islamic ethos on 'knowledge-seeking' is deduced by the Buddhist and Hindu tradition as intention of the research. This will also be explained in the data analysis section.

This section also partly addresses the second objective of the study that is to investigate the ethical viewpoints of the religious leaders with regards to the use of surplus and research embryos.

Table 4.1: Assigning the theme 'Sanctity of Life' based on data gathered from the respondents

Respondent	Data extract (verbatim)	Coded for	Theme
BR1	*In Buddhism, the first precept is 'no taking of life*	Not to destroy life	Sanctity of life
BR1	*…life begins immediately after fertilisation, and therefore embryo is considered a life, therefore should not be destroyed or disturbed.*	Beginning of life	Sanctity of life
BR1	*…one of the Dhamma is … Life is precious. Sanctity of life. Therefore, we must all protect life, preserve life, not to destroy life.*	Not to destroy life	Sanctity of life
BR1	*…the various scriptures always emphasise the importance of life, the preciousness of human life, the rareness of becoming a human being.*	Human life is precious	Sanctity of life
BR1	*In Buddhist scripture, it is very hard to become human, the chances of becoming a human being is very rare. So, from there we already know that we have to respect life, especially human life.*	Respecting life	Sanctity of life
BR1	*…we are considered one whole life, and in this one whole life, we gain ultimate salvation (nirvana). All life must be respected because we all have what we call the bodhi seed*	Respecting life	Sanctity of life
BR1	*it [5-day old embryo] has potential to become a human being, it is the beginning of human life*	Beginning of human life	Sanctity of life
BR1	*strive not to do this, [embryo research], because from Buddhist point of view we are destroying life.*	Not to destroy life	Sanctity of life
BR1	*Most Buddhist scholars will not agree to destroy any form of life right from the beginning. This is because the moment we open the floodgate, people will take life more and more. You see, the first precept in Buddhism is talking about life. Life is a gift which should not be simply taken away.*	Not to destroy life	Sanctity of life

Note: Data extract is not corrected for grammar, and is presented as how it was audio-recorded to retain originality. The codes are only for purpose of assigning themes.

Table 4.1, continued

Respondent	Data extract (verbatim)	Coded for	Theme
BR1	*Killing is a killing. That's why from the beginning it is considered any form of life; we do not want to destroy it. Because they have the potential to grow.*	Not to destroy life	Sanctity of life
BR1	*…when the mother's egg and the father's sperm meet together, that is when life forms. So, the process of life begins with that.*	Beginning of life	Sanctity of life
BR1	*…we respect life, and in the process half you destroy it, you know from the beginning you going to destroy it, you are not respecting life*	Respecting life	Sanctity of life
BR2	*For us life begins when you can start to see that there is a consciousness or when there is sign of the foetus reacting to stimulus, or any signs that tells us there is life. But at this stage, is just a lump of cells, doesn't give you any signs having a life. So, it is quite OK from our point of view because it doesn't get classified as killing because it is not a life, is only a bunch of cells, which has the potential to grow if it is given a chance*	No signs of life	Sanctity of life
BR2	*Just by dividing the cells, doesn't mean there is life… signs of life, so there is consciousness. But before that, without nervous system and a brain, it is very difficult to say that life has taken place there.*	No signs of life	Sanctity of life
BR2	*If there is no life, we don't say it is killing. Killing involves destroying a being.*	ESCR is not killing	Sanctity of life
BR2	*Life is sacred…As long as we don't see or think the life is there yet, it is only physical mechanism dividing the cells, it is not killing.*	ESCR is not killing	Sanctity of life

Table 4.1, continued

Respondent	Data extract (verbatim)	Coded for	Theme
BR3	*Buddhism has got the five precepts. And the first one is abstain from killing; of course the more positive aspect is to protect life. This is the one directly related to issue of stem cell research… I don't think so life is formed at day-5.*	No signs of life	Sanctity of life
BR3	*That scripture says that life is formed when the three [elements] are there, and in modern language is the sperm, ovum and consciousness. However it does not say that it occurs at day-1. The definition of life is when the mind and body come together.*	Life not fully formed	Sanctity of life
BR3	*Human life is precious… human life is special, the fact that only human being can become a Buddhahood.*	Human life is precious	Sanctity of life
BR3	*The definition of life is the physical part and the mind part. The sperm and the ovum, the physical part. The question is besides that on day-5, is there consciousness component over there?*	No signs of life	Sanctity of life
BR4	*Killing part is considered when you plan it first to do it, you anger to do such thing, your intention to do; here all these thoughts not here, and also fully life not there, just only cells (life not form yet...). Is not considered life.*	ESCR is not killing	Sanctity of life
BR4	*Life begins when life begins, you see life never die...Life is continuation, life energy is continuation. Your physical body remains in this world but mind energy travel from physical body… Destroying lives, correct but [life] not fully formed yet, and not fully come into physical formation yet. That also due to his or her karmic energy.*	Life not fully formed	Sanctity of life
BR4	*…consciousness not fully developed yet, there's no destroying part.*	ESCR is not killing	Sanctity of life

Table 4.1, continued

Respondent	Data extract (verbatim)	Coded for	Theme
HR1	*Hinduism believes in Law of Dharma and Law of Karma which is the fundamental of sanctity of life. At cellular level, we believe that it is just a vegetation process. It is a living cell, with no soul… For the soul to dwell, a full purpose of the body with its functionality must be there. Usually, this will take some time, maybe around three months. So, the [5-day old] embryo stage, we believe is more of a vegetation process*	Life not fully formed	Sanctity of life
HR1	*Is not considered as a killing. There's no soul. We are not separating soul from the body.*	ESCR is not killing	Sanctity of life
HR1	*if you consider embryo as cells, then I don't see the element for killing.*	ESCR is not killing	Sanctity of life
HR1	*We believe that the vegetation process, the cellular activity has no soul… So, obviously, to come to conclusion, there is no element for killing.*	ESCR is not killing	Sanctity of life
HR1	*"Ellam piripu pirinthuke, tavara sangamitul". Ellam piripu pirinthuke* means many lives*;* and *tavara sangamitul* means vegetation live. Meaning I have taken many births in the process of vegetation of life, so you see, life is continuity. So, here Hinduism is differentiating vegetation life [cellular stage embryo] and ensoulment. Vegetation life is still more physical, more material. Ensoulment is the one that depends whether vegetation has already become body for soul to arrive.	No signs of life	Sanctity of life
HR2	*Bhroona Hathya, one of the sutras from Vedas, it says that killing a foetus is a sinful act, but in five days, it hasn't found the soul yet.*	No signs of life	Sanctity of life
HR2	*The other one is Caraka Samhita, from Vedas also. It says the Hindu have been quite protective about human embryos and foetus from time of conception onwards...*	Respecting life	Sanctity of life

Table 4.1, continued

Respondent	Data extract (verbatim)	Coded for	Theme
HR2	*Life is precious, we ought to respect life, at the same time, it is there for us to give also, to others also. In other words, I am referring to the research itself.*	Human life is precious	Sanctity of life
HR3	*The sperm is a life, you know. You can't say it is without life. And ovum also, already the potential is there. So, the two, already when they meet each other, they have the potency of developing into a human or a life.*	Beginning of life	Sanctity of life
HR3	*in our own thought in Hindu, we say egg is non-veg. Whereas, egg, you leave it there there's a potency for life it …there's already potency for life… shows the mother's ovum is fertilised when the sperm goes in, already the fertilisation takes place, there's a potency.*	Beginning of life	Sanctity of life
HR3	*According to Hindu scriptures human life begins when the male semen fertilises the female egg.*	Beginning of life	Sanctity of life
HR3	*…importance is given to life, is so sanctified and sanctification begins when mother and father gets together.*	Beginning of life	Sanctity of life
HR3	*Across the board, Hindu religion leaders perceive abortion at any stage of foetal development as killing (some say murder) and as an act of serious karmic repercussions. Hindu scriptures equates to abortion as garka-batta (womb-killing) and Bhroona Hathya (killing the undeveloped soul). A hymn in Rig Veda begs for protection of foetuses. The Kaushitaki Uphanishad draws a parallel between abortion and the killing of one's parents. Atharva Veda remarks that the foetus slayer, or bhrunaghri, is among the greatest sinners.*	Not to destroy life	Sanctity of life
HR4	*I think it [5-day embryo] has potential for life. Once the soul gets into the fertilised egg, the life starts, It may take about a few days.*	Life not fully formed	Sanctity of life

Table 4.1, continued

Respondent	Data extract (verbatim)	Coded for	Theme
CR1	*The church argument…Is that embryo, is earliest stage of human life, which carrying with it the potential of becoming a human person.*	Beginning of life	Sanctity of life
CR1	*The church always stood that human life from moment of conception must be accorded with protection and dignity.*	Human dignity	Sanctity of life
CR1	*…the guideline for the church is always will be the same. The moment of conception, life is protected. Life to be respected especially it is a human life. It to be given the human dignity and respect, although the church recognises it is not a human person yet because of the concept awareness and consciousness, but yet it is still a human life.*	Respecting life Human dignity	Sanctity of life
CR1	*…in understanding that they are created in God's image and likeness (Genesis 1:26-28). Therefore, must give dignity and respect accordance to a human person.*	Respecting life Human dignity	Sanctity of life
CR1	*Right from the beginning, human life in the form of embryo or foetus should not be treated as subject or product*	Human dignity	Sanctity of life
CR2	*Our position is that already at the moment of conception when the sperm and egg is fused, life begins and there is a soul already in it that God takes over. So, it is but is very clear from the Catholic perspective that life is sacred, which means that the embryo is life and the embryo is sacred from the very beginning*	Beginning of life Human life is precious	Sanctity of life
CR2	*So, God breathing life is God's giving soul into human person and for us God gives soul at the moment of conception at the very first day itself .*	Beginning of life	Sanctity of life
CR2	*Is always about protection of life. For us a simple commandment is "Thou shall not kill" which means you have to defend life… For us, it is very clear that life begins at the moment of conception which means you cannot expose life to excessive amount of danger that is in proportionate towards being destroyed in any way.*	Not to destroy life	Sanctity of life

Table 4.1, continued

Respondent	Data extract (verbatim)	Coded for	Theme
CR2	*Because human rights is about defending the weak in society, the voiceless in society. And this is where the embryos have human right.*	Human dignity	Sanctity of life
CR2	*There's no such thing as life impotency. Life is full the moment it begins but we have different stages of growth [embryonic life].*	Human life is precious	Sanctity of life
CR2	*At the end, what is the end-product? Life is destroyed, isn't it?... Whatever word you use, termination of life, killing, murder, discarding, the end product is the same*	Not to destroy life	Sanctity of life
CR2	*You cannot destroy life at any stage. There is no question of life impotency, no question of when ensoulment takes place. For us, from the very beginning, this is it. And we will hold on to this principle at every stage, whether at embryonic stage or whether at end-of-life stage. So, you have to hold on to same principle right throughout life.*	Not to destroy life	Sanctity of life
CR3	*According to Church teaching, life begins at conception, also stated in Vatican encyclical Donum Vitae 1987.*	Beginning of life	Sanctity of life
CR3	*Killing is killing, esp. of innocent lives, regardless of best motivations.*	Not to destroy life	Sanctity of life
CR3	*We are made in the image and likeness of God, not in pain or motor or neural function. God is not sadistic or mechanistic or neurotic. No use of embryos for research, with or without the above body mechanisms.*	Human dignity	Sanctity of life
CR3	*Since we do not know exactly when human life begins, best to provide protection of embryos from earliest stage of conception, when ensoulment occurs.*	Respecting life	Sanctity of life

Based on the analysis in Table 4.1, a thematic map is drawn to illustrate the issues surrounding the theme 'Sanctity of life'.

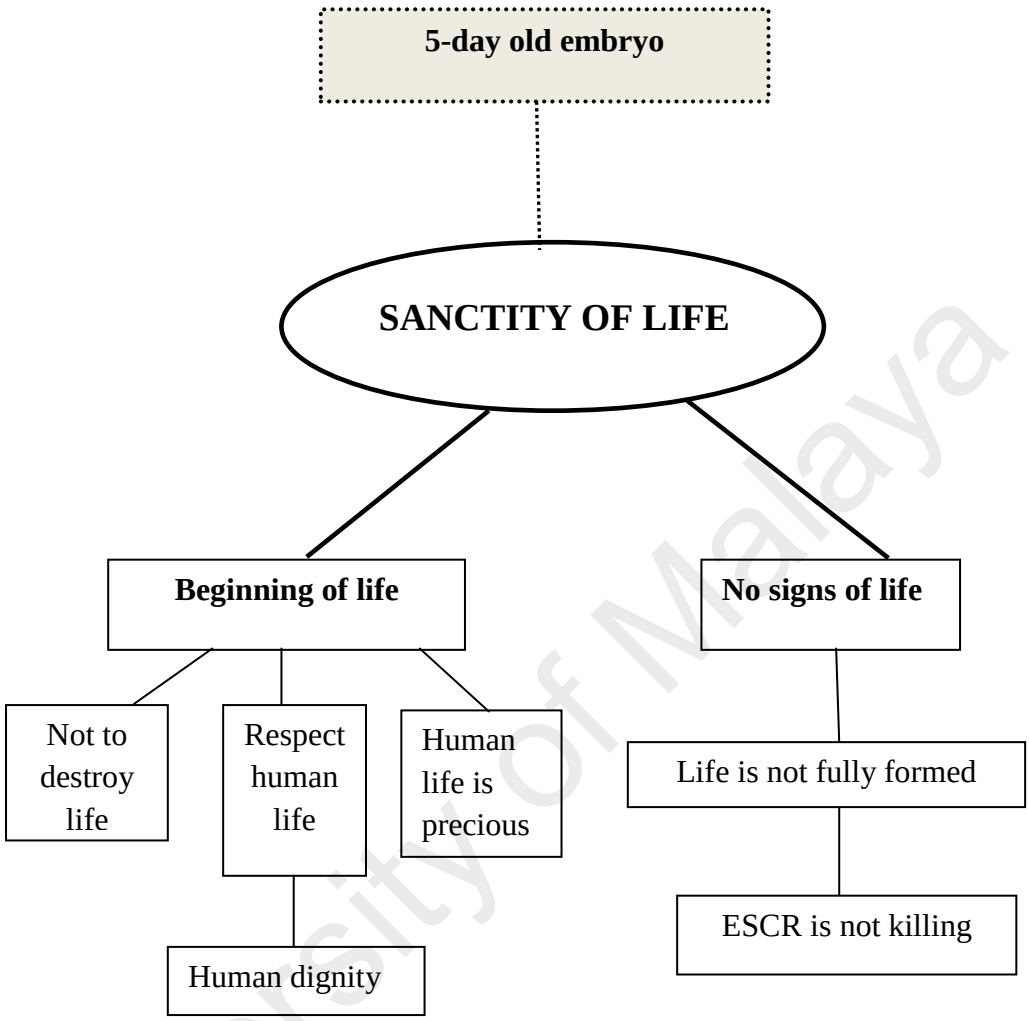

Figure 4.1: Thematic map presenting the concerns from both sides of the argument for a 5-day old embryo for the theme Sanctity of Life

From Table 4.1 and Figure 4.1, it is clear that for the theme sanctity of life, some respondents deliberated from the perspective of 'beginning of life', whereas some respondents deliberated on why ESCR is not seen as tampering with the notion of sanctity of life because there is 'no signs of life' in a 5-day old embryo. Responses from both sides of the divide with regards to the theme sanctity of life, are presented in the next section.

4.2 Analysis of Data

Analysis of the data, and the motivational factors behind the ethical concerns of the religious leaders on sanctity of life are presented below, alongside with verbatim quotes.[15]

4.2.1 Theme: Sanctity of Life

As shown in Figure 4.1, it can be seen that the respondents generally argued on the sanctity of life based on one of the two positions:

Argument (i): Life begins from the point of fertilisation. Thus, utilising 5-day old embryos in ESCR is destruction of life.

Argument (ii): There is no sign of life in a 5-day old embryo. Thus, utilising 5-day old embryos in ESCR does not constitute killing.

The responses either supported argument (i) or (ii), which will be analysed below. Concerns regarding the sanctity of life are directed at particular research protocols which interfere with religious notions of human ensoulment and early consciousness.

(a) Response from Buddhist leaders

Note: for analysis purpose, the Buddhist respondents are labeled as BR.

The responses from the Buddhist leaders on the notion of sanctity of life can be framed according to the perspective of early consciousness and process of fertilisation.

[15] A part of the analysis appeared in my publications, as appended in the Supplementary Section.

BR1 differed from the other Buddhist respondents on when life begins. He framed his views on sanctity of life from the aspect of fertilisation, promoting the argument (i) that life begins from the point of fertilisation.

BR1 emphasised the point that '*life begins immediately after fertilisation'* and as such he regarded the early embryo as a living entity. Thus the embryo should not be '*destroyed or disturbed'*. Reasons such as the '*preciousness of human life*' and the belief that it is '*rare to be born as a human being*' was forwarded, asserting the need to respect human life at all stages. Human birth was additionally held as 'precious' and 'rare' and this strengthened the notion of the sacredness of human life. He asserted that each human life is a '*bodhi seed'* which deserves respect. In addition, BR1 viewed 'killing as killing' regardless of its purpose.

However, the moral reasoning given by BR1 was rather complex. At one point, BR1 emphasised that life begins from the moment of fertilisation. However, when asked to comment about the use of surplus embryos in ESCR, respondent BR1 did not look at that issue from the context of sacredness of life alone, but pointed out that use of surplus embryos in ESCR could prevent wastage. With regards to the use of research embryos in ESCR, he disapproves, stating that this act denotes disrespect for life. "*Knowing right from beginning [that the] embryo will be destroyed, why then create it?*" said BR1. He cautioned that research should be done with proper care and not to open the floodgate.

On the contrary, Buddhist respondents BR2, BR3 and BR4 did not view ESCR as tampering with the notion of sanctity of life, promoting the argument (ii) that there is no sign of life in a 5-day old embryo. They did not see any moral difference between the use of surplus and research embryos, and encouraged research using both sources. They framed their views on the sanctity of life from the perspective of consciousness.

For instance, BR2 stated that life only begins when there is consciousness or when there is a reaction to stimuli and argued that "*It doesn't get classified as killing because it is not a life yet, it is only a bunch of cells [undergoing] physical division*."

Another respondent, BR3, agreed that human life is precious and only human being can attain *Buddhahood.* However, he asserted that life is defined when the physical part, that is the sperm and ovum, co-exist with consciousness. "*The definition of life is when the mind [consciousness] and body come together*." He argued that the consciousness component is not present in a 5-day embryo, thus raising the point that life is yet to be formed.

Adding to this, BR4 stated that according to Buddhism, the idea of killing is largely associated with an act that is pre-meditated by bad motives and usually laden with anger. He argued that none of this applies to ESCR, *"..here all these thoughts are not [present],...only cells [present]…[it] is not considered life.*"

Thus, refuting the argument that using a 5-day old embryo in ESCR is destroying life, BR4 said, "…*life [is]not fully formed yet, and [has] not fully come into physical formation yet*".

Discussions from the notion of sanctity of life led all the Buddhist respondents to look into the subject from the perspective of rebirth. BR1 stated that all life forms are part of 'samsara'. Buddhism views karmic energy as the non-material energy that travels from one being to another forming the cycle of birth and death known as *samsara*, resulting in a causal relationship.

According to BR2, "*For us everything is impermanence...There is a causal relation, continuous relationship… Buddhism is about non-self, or annata".* [The respondents refer to non-soul as *annata.*]

Similarly, BR3 stated, "*We don't call it soul because the word soul implies there is a permanent self. The word here is continuation of entity. Buddhism is about non-self, non-permanent."*

BR4 also expressed a similar view - that sperm, ovum and consciousness need to be present for rebirth to take place. As such, BR4 said that "*it is the particular life energy that moves, there is no involvement of soul from a Buddhist point of view*".

Unlike Islam and Christianity, Buddhism does not believe in the notion of an eternal soul. The Buddhists refer to the life energy (consciousness) as non-material self or '*annata*'. It is interesting to note that, although all the respondents addressed rebirth in a similar manner, it is the moral interpretation of the leaders that led to the point of contention, whereby respondents BR2, BR3 and BR4 argued that a 5-day old embryo lacks consciousness, and thus has no sign of life, indicating approval for ESCR. Whereas respondent BR1 asserted that life begins from the moment of fertilisation, thus stating his objection to ESCR.

(b) Response from Hindu leaders

Note: for analysis purpose, the Hindu respondents are labeled as HR.

The response from the Hindu leaders on the notion of sanctity of life can also be framed according to the perspective of early consciousness and process of fertilisation.

Two Hindu respondents, HR1 and HR2 did not view ESCR as tampering with the notion of sanctity of life, promoting the argument (ii), that there is no sign of life in a 5-day old embryo. This is because a 5-day old embryo, according to them, is still in its vegetative state. The third respondent HR3, promoted argument (i) that life begins

from the point of fertilisation. The fourth respondent, HR4, was rather cautious in promoting either argument.

Since the issues pertaining to ESCR are relatively new to the Hindu leaders, all the four representatives were very careful when making their stand so as not to appear to be giving a full-fledged support to ESCR. Therefore, all Hindu respondents only supported the use of surplus embryos and opposed the utilisation of research embryos in ESCR.

HR1 permitted ESCR as long as it abides by the Law of *Karma,* the Law of *Dharma* and the principle of *ahimsa*. HR1 presented his views on the sanctity of life from the perspective of consciousness and ensoulment. He regarded a 5-day old embryo as still being in a vegetative state, a living cell without the presence of a soul.

> "*At cellular level, we believe that it is just a vegetation process. It is a living cell, with no soul… For the soul to dwell, a full purpose of the body with its functionality must be there. Usually, this will take some time, maybe around three months. So, at the 5-day [old] embryo stage, we believe [it] is more of a vegetation process."*

Ensoulment only takes place around 90 days after fertilisation, according to Hindu scriptures like *Thevaram* and *Thirumanthiram*. As such, extracting stem cells from a 5-day old embryo is not considered killing because the embryo is still in its vegetative state and the soul is not present yet, says HR1. He further made reference to the verse, '*Ellam piripu pirinthuke, tavara sangamitu'.*

> "*Ellam piripu pirinthuke* means many lives, and *tavara sangamitul* means vegetation live. It means I have taken many births in the process of vegetation life, so life is continuity. So, here Hinduism is differentiating vegetation life [cellular stage embryo] and ensoulment. Vegetation life is still more physical,

more material. Ensoulment is the one that depends whether vegetation [cells] have already become body for the soul to arrive."

Respondent, HR2, presented his views on sanctity of life from the perspective of consciousness and ensoulment. He argued that "*in five days, it [embryo] hasn't found the soul yet".*

In addition, HR2 said, " *The soul is purposeless when the body is not there. That's why in a 5-day [embryo], the soul won't feel the pain because the body is not formed yet".*

According to HR2, there is no doubt that human life is precious right from the beginning, but the question is whether the soul is present in a 5-day old embryo which comprises of cells and lacks a structured body. He added that the presence of soul in a body marks the 'real' presence of life.

Contrary to the rest, HR3 stated her views on the sanctity of life from the aspect of fertilisation, promoting the argument (i) that life begins from the point of fertilisation. HR3 was protective of human embryonic life. She recalled the South Indian Hindu tradition which regards the egg as being non-vegetative for the reason that it has the potential to develop into a living being. The fertilised ovum or embryo, should therefore, be recognised as a more advanced stage in human life and hence worthy of protection. According to her, human life begins when the male sperm fertilises the egg. As such, HR3 did not favour ESCR. However, taking into consideration the wastage of surplus embryos, HR3 agreed to the use of surplus embryos in ESCR but disapproves the creation of research embryos for ESCR.

Respondent HR3 did not elaborate her views on sanctity of life from the perspective of consciousness or ensoulment. When asked, HR3 said, *"the soul is a*

continuous one… it leaves a body and gets into another body according to the good and bad karma".

However, HR3 did not comment further on ethics of ESCR from the perspective of ensoulment, but firmly established her views from the context of fertilisation, giving due reverence to the male and female gametes.

According to HR3:

> *The sperm is a life. You can't say it is without life. And ovum also, already the potential is there. So, the two, when they meet each other* [at point of fertilisation], *they have the potency of developing into a human or a life.*

On the other hand, HR4 was rather cautious in making his stand. He presented his views based on the potentiality of the embryo to become a human being. However, HR4 did not clearly indicate when human life begins. "… *it [5-day embryo] has potential for life. Once the soul gets into the fertilised egg, the life starts, It may take about a few days,"* said HR4.

Nonetheless, HR4 did not cite any particular reference as to when the soul is likely to fuse with the fertilised egg. On ensoulment, HR4 stressed the belief that *"when a body dies, the soul doesn't die"* but moves on to another body, suggesting that a 5-day old embryo has potential for life.

The Hindu tradition is that ensoulment is the concept underscoring the notion of sanctity of life, whereby the presence of a soul in a body is a sign of life. When a body dies, the soul transmigrates to another body resulting in continuity according to respondents HR3 and HR4. However, in a 5-day old embryo which is not fully developed, the soul is not present, according to respondents HR1 and HR2.

On the whole, HR1 and HR2 presented their views on the sanctity of life from the perspective of consciousness and ensoulment, while HR3 from the aspect of

fertilisation and HR4 from the perspective of potentiality of embryo. Although the deliberations on sanctity of life were presented by the Hindu representatives from different aspects, they all were of the view to allow the use of surplus embryos but prohibit creation of research embryos for ESCR.

(c) Response from Catholic leaders

Note: for analysis purpose, the Catholic respondents are labeled as CR.

Unlike the Buddhist and Hindu leaders, all three Catholic priests were well-versed on the ethical issues regarding ESCR. All the Catholic respondents, unanimously held to the argument (i): life begins from the point of fertilisation, thus objecting to any form of ESCR.

All of them unambiguously adhered to the official position declared by the Vatican, which opposes ESCR whether it uses surplus or research embryos. This is the accepted position of all Catholic churches worldwide, and the respondents conceded to not hold a different standpoint on the matter.

All of them presented their ethical views on sanctity of life from the aspect of fertilisation only. They reiterated their belief that human life begins from the moment of conception, is held sacred from thence onwards and must be accorded protection, respect and dignity.

Respondent CR1 explained, "*The church always stood that human life from moment of conception must be accorded with protection and dignity."*

The Papal encyclicals, and Book of Genesis verse 1:26-28 and verse 9:6 citing that human persons are created in God's image and likeness and, hence respect ought to be given to human life, were also referred to. Respondent CR1 declared, "…*they*

[embryos] are created in God's image and likeness. Therefore, must give dignity and respect [in] accordance to a human person."

On the perspective of consciousness, CR1 explained that though the Church agrees that the embryo is not a human person yet as it lacks the consciousness of a human being, the Church has always recognised the embryo as a human life right from the beginning. As such, CR1 said that the human embryo should not be treated as a research subject, and that includes IVF treatments. Similarly, CR2 said that life is sacred and, since embryo is a life, the embryo is also sacred from the very beginning.

There is no divine revelation about when ensoulment takes place. However, all the respondents took the position that the soul is present from the moment of fertilisation. As CR2 put it, "*Our position is that at the moment of conception when the sperm and egg is fused, life begins and there is a soul already in it that God takes over".*

CR2 further added, "*God breathing life [means] God is giving a soul into a human person and for us God gives a soul at the moment of conception at the very first day itself."*

CR3 also concurred that*, "Since we do not know exactly when human life begins, [it is] best to provide protection of embryos from earliest stage of conception, when ensoulment occurs."*

The Vatican asserted that procreation must be through natural means and the church is against IVF. Thus, it is not surprising that all the three respondents objected to utilising surplus embryos left from IVF treatment for stem cell research as the Church does not support IVF in the very first place.

Regardless of the best motivations, respondent CR3 asserted that killing is killing, and this applies to ESCR. Interestingly, referring to the Biblical Book of Exodus, CR2 also supported the view that human dignity is all about defending the

weak and voiceless in society, and he believes the same goes for the embryos. CR2 put it concisely, whether it is discarding surplus embryos, or destroying embryos for research, the end product is terminating lives, and hence both are to be treated as being equally evil. Declaring that destroying life at any stage is prohibited, CR2 said that there is no question of "*life impotency*" or as to "*when ensoulment takes place*". In other words, the Catholic respondents were consistent in holding on to the principle of respect for life at all stages.

To the argument that a 5-day old embryo has not developed a nervous system, and is therefore not able to sense pain and lacks consciousness, CR3 alluded to the Biblical verse that human beings are made in the image and likeness of God, and not determined by any motor or neural functions. Thus, CR3 stressed that such an argument should not be used to justify the use of embryos in ESCR.

On the whole, the Catholic respondents explicitly expressed a consistent view underscoring the notion of sanctity of life, emphasising that life begins from the point of fertilisation. Therefore, the use of both surplus and research embryos in ESCR is destruction of life itself. In fact, a substantial part of the interviews with the Catholic respondents focused on the inviolability of embryonic life. The Catholic respondents gave their utmost priority to respect life and to accord protection to the human embryos.

The positions pronounced by the Vatican are unreservedly adopted by Catholic churches in Malaysia.

Table 4.2: Assigning the theme 'Do No Harm' based on data gathered from the respondents

Respondent	Data extract (verbatim)	Coded for	Theme
BR1	*…we cannot say that if [the research is for finding cures] I mean for better good, then we keep up as better human being. In Buddhism, this is very clear. What is considered wrong or 'akusala' (unwholesomeness action) must be considered as wrong or 'akusala'. We cannot justify the wrong or 'akusala' by saying that the wrong or 'akusala' way can be justified. Although the 'akusala' can bring about good outcomes*	Research not justified for better good	Do No Harm
BR1	*When we do research we can always do it in such a way without inflicting suffering to third parties… They can find many other ways to solve the problems. They should try do their research in such a way as not to incur suffering to other lives.*	Without inflicting suffering	Do No Harm
BR1	*…reduce this kind of suffering. If we can find alternatives, good means to do public good, that would be better.*	Look for alternatives	Do No Harm
BR2	*As long as this [research] is based on non-violence and it is not hurting another being, we can use it to help another being who are suffering. There's no damage or harm being done here [ESCR] by using these [embryonic stem] cells.*	Non-violence Not hurting	Do No Harm
BR3	*…the one directly related to issue of stem cell research – Do No Harm - all schools of Buddhism, agree on this precept. Harming embryo, generally no, because I don't believe a life has formed.*	Not to inflict harm	Do No Harm
BR4	*…there's a life period, there's karmic energy to remain in this world. Same thing here, the embryos destroyed or whatever, there's energy brought over birth. We can say a 5-day [embryo], there are no senses… Pain definitely won't be there*	Not hurting	Do No Harm

Table 4.2, continued

Respondent	Data extract (verbatim)	Coded for	Theme
HR1	*also guided by principle of ahimsa, which you cannot do harm to any living being and soul*	*ahimsa*	Do No Harm
HR1	*if it is meant to harm others with the objective of a bad thing then of course from the Law of Karma, it is bad*	Not to inflict harm	Do No Harm
HR1	*As embryo, it still not has moral status, still not have a soul in it, still not have conscience in it. Based on this aspect, we believe we are not harming a soul. We are not doing any harm to a soul. Here, we are clear that there is only a vegetation process of a cellular activity, and a soul cannot dwell, because for a soul to dwell, a comprehensive body structure hasn't developed yet.*	Not to harm soul	Do No Harm
HR2	*So as long as you don't disturb the system, the Hinduism encourages this research. Meaning we have a way of life, as long as you don't come and disturb in the system*	Not to disrupt Nature	Do No Harm
HR2	*Why Hinduism encourage research of the 5-day one? Because this soul has not gone through process of happiness and bitterness. It has not gone through the process of karma, process of pain, and all the experiences of a soul yet The soul is purposeless when the body is not there. That's why a 5-day soul won't feel the pain because the body is not formed yet.*	Not to harm soul	Do No Harm
HR3	-	-	-
HR4	*Basically Hindu don't like to harm lives. Lives here mean many things. Even embryo is already on the verge of forming lives.*	Not to inflict harm	Do No Harm
HR4	*…in Siva Puranam, mentioned that our life is based on evolution. The highest level is the intellectual part of human being… Main thing is ahimsa, in the sense that you must avoid harming others.*	*ahimsa*	Do No Harm

Table 4.2, continued

Respondent	Data extract (verbatim)	Coded for	Theme
HR4	*If you do it with greed, you are destroying without considering safety precautions, then that is being cruel. You have to avoid being harm. You cannot be completely harmless, but avoid being harm… If is going to cause pain, it should be avoided*	Not to inflict harm	Do No Harm
CR1	*embryo should be given protection from harm, to fulfill its full potential, comes with human dignity and respect*	Protect from harm	Do No Harm
CR1	*Creation means that actually disrupt the flow of nature. Is it about according to God's plan? No*	Not to disrupt Nature	Do No Harm
CR1	*in that sense the church is against it because the end does not justify the means. The argument that greater good overweighs the evil means, cannot be tolerated*	Research not justified for better good	Do No Harm
CR2	*God is the one who gives the soul from the very beginning, so from moment of conception, there is already a soul.*	Not to harm soul	Do No Harm
CR2	*For the purpose of experiment, even some may argue it will make our lives better, for the betterment of human race, but the end cannot justify the means.*	Research not justified for better good	Do No Harm
CR3	*Church teaching does not advocate the greatest good for the greatest number. Instead, will refer to scripture, "What does it profit a man, if he wins the whole world but suffer the loss of his own soul", The common good is not to be at the disproportionate expense and detriment of the human person.*	Research not justified for better good Not to harm soul	Do No Harm

Based on the analysis in Table 4.2, a thematic map is drawn to illustrate the issues surrounding the theme 'Do No Harm'.

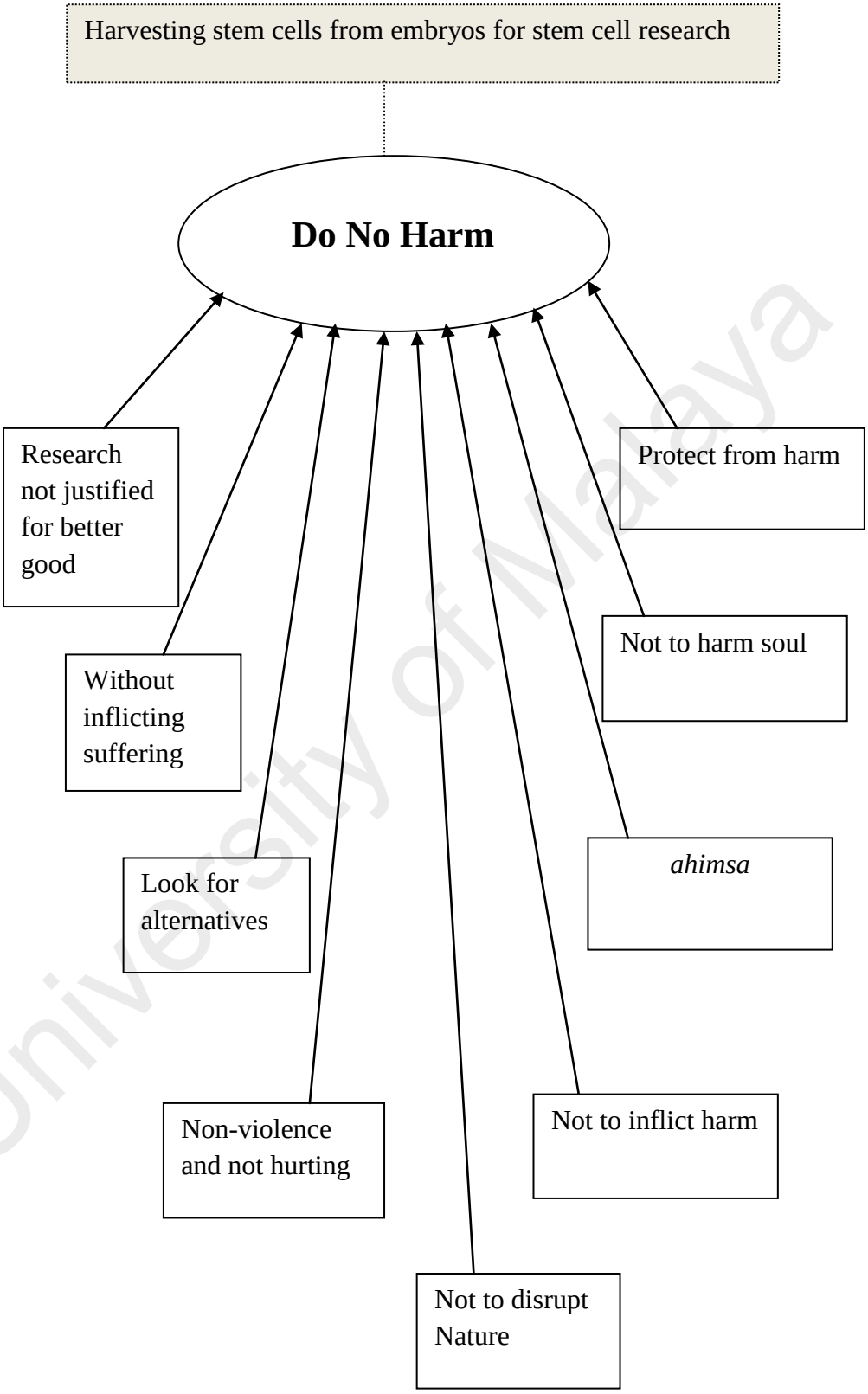

Figure 4.2: Thematic map presenting the concerns and values related to the theme 'Do no harm'

4.3.2 Theme: 'Do no harm'

In this section the concept of non-maleficence embodied by the phrase, "first, do no harm" – is extended to human embryos. The Buddhist and Hindu respondents guided by the principle of *ahimsa* were against inflicting suffering to embryos. The Hindus and Catholics, who believe in ensoulment, also shared their concerns about not harming a soul, and avoiding hurting living entities. The Hindus and Catholics, were also of the view that one's action should not be against the flow of Nature.

It is interesting to see how the Buddhist and Hindu respondents arrived at their standpoint to support ESCR, in particular on the use of surplus embryos, while also generally maintaining the principle of 'do no harm'.

Contrary to the rest, the Catholic respondents held the view that ESCR does inflict harm on the soul, and thus cannot be justified in the name of public good. They opposed all forms of ESCR.

The responses obtained from the religious leaders depended on their argument whether utilising 5-day old embryos in research violates the principle of 'do no harm' or that it did not.

(a) Response from Buddhist leaders

The responses from the Buddhist leaders focused on the notion 'do no harm'. While respondents BR2, BR3 and BR4 explained why utilising a 5-day old embryo does not violate the precept of 'do no harm', BR1 emphasised that harvesting stem cells from a 5-day old embryo does inflict harm to the entity.

BR2, BR3 and BR4 viewed that life only begins when there is a consciousness or when there is a reaction to stimuli. As such, they argued that utilising 5-day old

embryos for ESCR does not violate the first precept in Buddhism, which discourages acts that involves harm.

For instance, since a 5-day old embryo is not regarded as a sentient being, BR2 stressed that, '*as long as this [research] is based on non-violence and not hurting another being*' it is allowed.

BR2 further stressed that "*There's no damage or harm being done here [ESCR] by using these [embryonic stem] cells."*

Similarly, BR3 did not view that a life is formed in a 5-day old embryo. He agreed that the first precept in Buddhism which is directly related to ethics of ESCR, is - 'do no harm'. However, he asserted the precept is not violated in ESCR. BR3 stressed, that generally, there are no concerns about harming embryonic life since a life 'has not formed' yet.

BR4 reiterated the argument about not inflicting harm, however, he pointed out that a 5-day old embryo has no senses, and thus there is no pain inflicted on the embryo if it is utilised for research. In his words:

> *There's a life period, there's karmic energy to remain in this world. Same thing here, the embryos destroyed or [not], there's energy brought over birth. We can say [for] a 5-day [embryo], there are no senses… Pain definitely won't be there.*

Unlike the others, BR1 held that a 5-day old embryo has life**,** explained that according to Buddhism, what is considered wrong or '*akusala*' cannot be justified even if it is for the better good. Thus, BR1 argued that research should be done in a way that does not inflict suffering on others, and went on to propose that it would be better to find alternatives to using embryos for research. In his words:

> *They can find many other ways to solve the problems. They should try do their research in such a way as not to incur suffering to other lives.*

On the whole, three Buddhist respondents agreed to the precept of 'do no harm' but they maintained that using 5-day old embryos in ESCR does not violate the precept. The other respondent asserted that ESCR cannot be justified for public good as it does harm embryos, and violates the principle of 'do no harm'.

(b) Response from Hindu leaders

HR1 put it that Hindus are guided by the principle of *ahimsa*, which means you cannot harm any living being or soul. HR1 particularly asserted that harming a soul is bad *Karma*. However, HR1 pinpointed that a 5 day old embryo does not have a soul.

> "*As 5-day embryo, [it] still has no soul in it, no conscience in it…there is only a vegetation process of a cellular activity, and a soul cannot dwell, because for a soul to dwell, a comprehensive body structure hasn't developed yet."*

According to HR1, a 5-day old embryo comprising cells has not developed a structured body in which the soul may dwell. As such, harvesting stem cells from a 5-day old embryo does not harm a soul, according to Hindu tenets.

HR2 contended that ESCR is encouraged "*as long as you don't disturb the system".* Here, HR2 is saying that the natural system which regulates the universe and its entities in a balanced proportion should not be harmed.

In addition, while maintaining the stand of not harming a soul, HR2 stated that research on a 5-day old embryo is encouraged because:

> *"The soul has not gone through process of happiness and bitterness. It has not gone through the process of karma, process of pain, and all the experiences of a soul yet. The soul is purposeless when the body is not there."*

HR2 added that this is the reason a 5-day old embryo does not experience pain, because the body is not fully formed for the soul to dwell in. In other words, according to Hinduism, it is the soul that experiences the pain and pleasures of life. Since a 5-day old embryo does not have a soul, it is allowed to be used for ESCR.

HR3 did not comment on the notion of 'do no harm' as she had limited her reasoning to the notion of sanctity of life, and intention of the research.

HR4 who declined to give a clear stand on matters involving ESCR disclosed that decisions on contentious issues affecting Malaysian Hindus are often taken in consultation with rulings made by the government of India. The main emphasis, he says is *ahimsa*, which is to avoid harming others. In his view, a 5-day old embryo is on the verge of becoming a life. HR4 refers to *Siva Puranam* on 'evolution of consciousness', describing plants as being at the lowest level, followed by animals and human beings at the highest due to their possession of an intellect. Referring to ESCR, he said "*You cannot be completely harmless, but avoid [inflicting] harm intentionally."*

While not disapproving ESCR, HR4 requested that there be 'less destruction' when conducting such research. This would be in sync with the concept of *ahimsa*.

All the Hindu respondents unanimously objected to the use of research embryos in ESCR. Intentionally cultivating embryos for research, they said, is not permitted as it is viewed as going against the will of nature, will of virtue, and incurring bad *karma*.

(c) Response from Catholic leaders

The Catholic respondents were of the view that ESCR, which involves the destruction of embryos, inflicts harm on embryos and their souls. Thus, ESCR is not justified.

Respondents CR1 and CR2 rejected the argument that ESCR promotes medical advancement and better quality of life, advocating the principle that the 'end does not justify the means'.

CR1 said, "*the argument that greater good overweighs the evil means cannot be tolerated*". CR2 concurred.

The third respondent, CR3, alluded to a clause in the Bible i.e. the Book of Mark verse 8:36 and Book of Matthew verse 16:26 that states "*What does it profit a Man if he wins the whole world but suffer the loss of his own soul?*", stressing that the Church does not advocate the greatest good for the greatest number. This means the common good should not be at the disproportionate expense of other living entities.

Commenting on the notion of harming a soul, CR2 argued that a soul is present from the moment of conception, according to Catholic belief. Thus, he argued that the destruction of an embryo only harms a soul.

Besides that, CR1 said that the embryo should be protected from any harm, as to allow it to fulfill its potential as a human being. He added that the creation of embryos disrupts the flow of Nature and is not in accordance with God's plan.

All the Catholic respondents asserted that they are not against stem cell research but only against ESCR. This is because ESCR involves the destruction of human embryos which they regard as human lives right from the beginning. They unequivocally supported the search for alternatives such as adult stem cell research.

Table 4.3: Assigning the theme 'Intention of the research' based on data gathered from the respondents

Respondent	Data extract (verbatim)	Coded for	Theme
BR1	*Instead of going into the rubbish bin, then, of course is better to use for research.*	Not to waste	Intention of the research
BR1	*Because the [surplus] embryo is going to die anyway. So, if is going to die anyway and because the moral status has not developed, the amount of suffering that this [5-day old] embryo go through will be less. Perhaps the consciousness has not developed yet. Instead of wasting it completely knowing that is going to die, then is more useful if use it for some kind of research.*	Not to waste	Intention of the research
BR2	*…it depends on the motive or intention behind this Karma action. So, here we have to look at the intention. If our intention is not to destroy life but actually to help, that is whole point of the research. It is meant to help mankind, not to bring suffering, so it is done with a pure intention.*	For a good cause	Intention of the research
BR2	*But, here, you are trying to actually help a life by using some cells, to live a better life, to have a better quality of life.*	For betterment of life	Intention of the research
BR2	*For us, our main aim, is to bring suffering to an end, to be free from suffering. That's what Nirvana means. So, that is our purpose…* *is by all means to help humanity. Because our purpose in life is to eliminate suffering. And we do it in different stages. Aim to be at higher stage to be free from all suffering. Buddhist aim is to be free from all kinds of suffering and bring whole mass of suffering to an end. But you can't do it straightaway. There is a process. So, human beings try to eliminate suffering in different stages.*	To end suffering	Intention of the research

Table 4.3, continued

Respondent	Data extract (verbatim)	Coded for	Theme
BR3	*It is not the intention to destroy. The intention counts a lot. It is not the intention that there's a being and want to destroy the being. This one the intention is use for another cause.*	For a good cause	Intention of the research
BR3	*Buddhism allows with conditions. And the conditions are based on intentions, is not so much of God, whether we trying to play God or not, whether it is against nature, is not for that kind of reasons. We believe in intentions. And another concept is concept of Karma, the Law of Cause and Effect. Whether it [ESCR] is good or not, it depends on intention.*	The outcome of research	Intention of the research
BR3	*It [research] is not an obligation. [Seeking] knowledge for compassionate reasons? Is Intention. It goes back to intention.*	For a good cause	Intention of the research
BR3	*Interpretation is very important. It can be intentionally killing but for bigger purpose or bigger reason… intention to help the public suffering from disease is a higher purpose*	Higher purpose	Intention of the research
BR4	*Buddhist totally support, for scientific development doing some sort of research as well as helping people, where we call it Dana or donation.*	Encourage donation	Intention of the research
BR4	*Overall aim and objective is noble to benefit people, where the important thing is, able to develop education...*	For benefit of all	Intention of the research
BR4	*That argument respecting life and destroying life – it all comes to the same thing – intention… if you put in waste also consider destroying*	Not to waste	Intention of the research
HR1	*The objective of doing research is more important than talking about the embryo itself. If it is for good purpose, for humanity overall, as long as there is no soul in it, then it is possible.*	For a good cause	Intention of the research

Table 4.3, continued

Respondent	Data extract (verbatim)	Coded for	Theme
HR1	Thayumanavar (Hindu Saint) said: *"Ellorum inbutrirukka ninaipadhuve-allamal veronrariyom Paraparame*" that means basically everyone has to live in harmony (prosperity to all); that is the most important principle in life. And quote another one: *"Inbame sullege ellorum vaalga",* basically means let everybody live in harmony and to the benefit of everyone. So that everyone live much happier…	For benefit of all	Intention of the research
HR1	*if the person is already suffering and the person has to be treated, if his soul is suffering, then of course Hinduism believes that we should not see anyone suffering… for the benefit of curing disease or for benefits of person suffering, that is allowed.*	To end suffering	Intention of the research
HR2	*religion permits us or allows us to think forward and always encourage for research. In order to cure for sickness, you need to look for new methodology… Hinduism is about, encourage positive activities for humankind. I mean you doing something for the society, Hinduism will encourage.*	For benefit of all	Intention of the research
HR2	*The story of Kandapan hunter who took off his eye and put on deity's eye oozing blood, the idea is to donate for some good cause, for the humanity, this [ESCR] is possible and encouraged in Hinduism*	Encourage donation	Intention of the research
HR2	*The ultimate objective of these Purana stories is to tell Dharma. On that sense, of course, sacrificing for betterment of others… Hinduism teach that the intention is good for good, for the benefit of humankind, for that we encourage.*	For the betterment of life	Intention of the research
HR2	*Scientific approach for the betterment of the people. At the other side, you see sickness and number of diseases growing also. A beautiful verse from Thiruvasagam says that, "You are the classical people and at the same time you are the most advanced people", in the sense that putting it in practice.*	For the betterment of life	Intention of the research

Table 4.3, continued

Respondent	Data extract (verbatim)	Coded for	Theme
HR2	*…intention must be good too. Intention of doing karma (action) is important. If this ESCR is for benefit of people although it nearly looks like bad, the end result is giving benefit. So, it is good karma.*	The outcome of research	Intention of the research
HR3	*I think they can do with do with the one throwing away [surplus embryos], they don't have to become avaricious to create new ones. From Hindu point of view they are incurring bad Karma. That throwing can be instead used because there is no any bad intention.*	For a good cause	Intention of the research
HR3	*There is one leeway for you, condemn abortion except when life of mother is in danger. So, that's slight loophole, interpret as attitude of 'Dhaya' or 'Dhaiyavu' (caring, consideration, kindness) or parivu.* *we have the concept of caring for other people. It is there, the 'Dhayai', 'parivu' (caring), there is a loophole. Ideally the wasted ones is sort of what we can use.*	Care for others	Intention of the research
HR3	*Intention counts a lot. The good intention carries a lot. Even in Hinduism, service means a lot. There's a story. In Periya Puranam, the Kandapan hunter saw the Lord deity's eye bleeding. He was upset, he put his eye placed on the deity to stop bleeding. In the end, he only saw God, life - he never questioned - innocence, devotion and oneness in the eye. Hinduism gives a lot of importance for that [intention].*	For a good cause	Intention of the research
HR4	*but the intention is always what is needed only and not to kill at random. The story of Kandapan, he saw the eyes of God bleeding. He took his eyes and put on it. You find he's so compassionate. So, I think that's what God expects us to do [to be compassionate]*	Care for others	Intention of the research

Table 4.3, continued

Respondent	Data extract (verbatim)	Coded for	Theme
HR4	*…attempting to do something to improve life or health conditions. But here it must be done with good intention. You must avoid too many embryo cells being destroyed or wasted. You must stop wastage.*	For betterment of life Not to waste	Intention of the research
HR4	*If the intention is to cure diseases, it is recognised. Killing an embryo after a certain time should be avoided. If is the question of going to wastage and using for research, that (option) probably is better. But whatever is done, must be done with good intention.*	For a good cause	Intention of the research
CR1	-	-	-
CR2	-	-	-
CR3	-	-	-

Note:

None of the Catholic leaders underscored their views from the point of intention of the research given that the Catholic Church strongly opposes ESCR arguing that it involves destruction of lives.

Based on the analysis in Table 4.3, a thematic map is drawn to illustrate the issues surrounding the theme 'Intention of the research'.

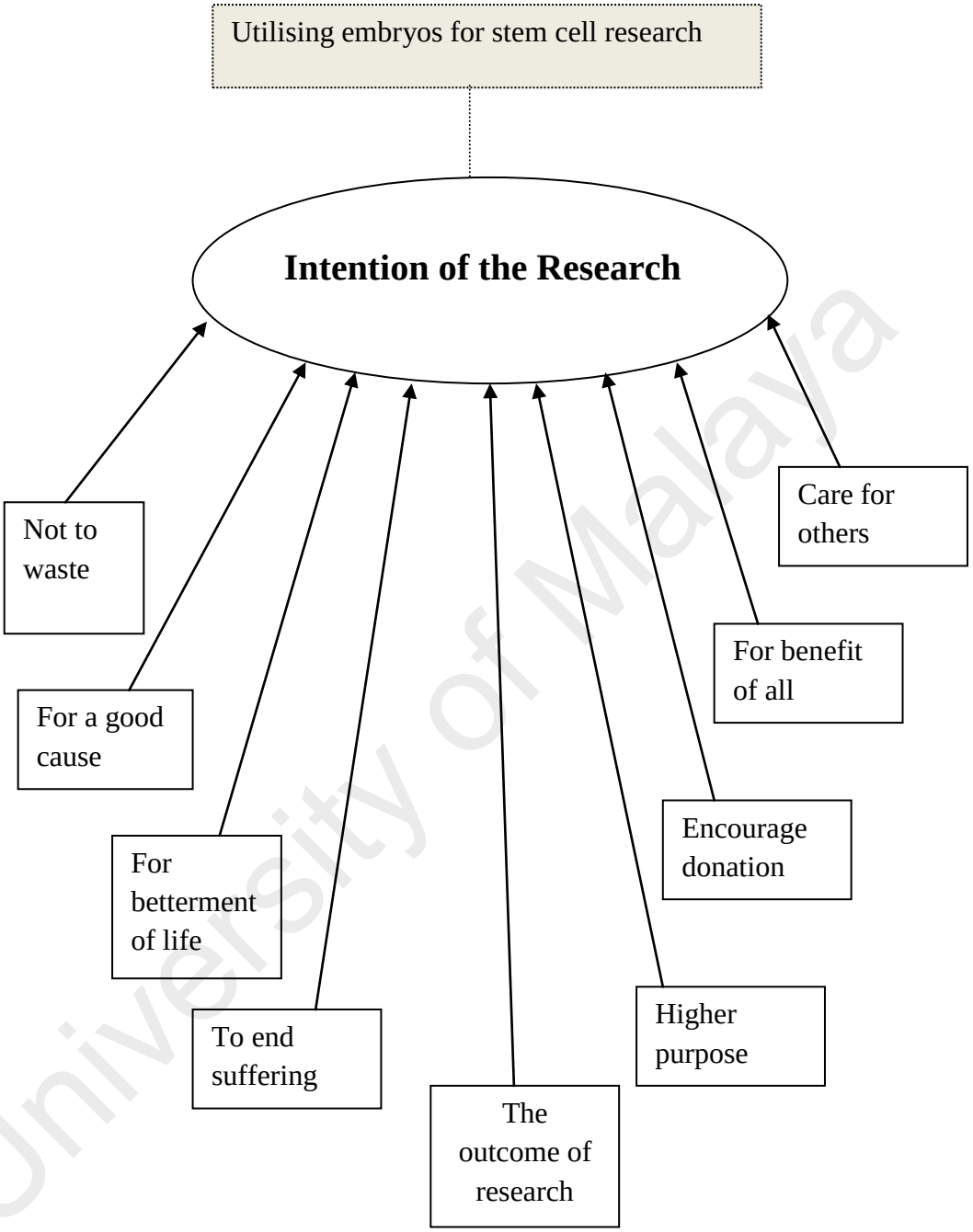

Figure 4.3: Thematic map presenting the concerns and values related to the theme 'Intention of the research'

The Buddhist and Hindu respondents whilst not touching on 'knowledge-seeking' (which is emphasised in Islam), instead focused on the intention of the research. This will be discussed in the next sections.

4.4.3 Theme: Intention of the Research

Intention is an intrinsic element in both Buddhism and Hinduism, and is referred to as *sankalpa*, which is beyond mere goals and objectives. In Buddhism, right intention is the basis for right view, right thought and right action. Similarly, right intention is the basis of good *karma* in Hinduism. The good intention of the research is as a very important factor among the Buddhist and Hindu respondents. Under this theme, they referred to the benefits of ESCR such as: research for a good cause, for betterment of life, for benefit of all, and to end the suffering of mankind. Other positive values such as encouraging donation, and not wasting resources were also emphasised. The outcome of research is given importance. The strong views on intention of the research given by the Buddhist and Hindu respondents set them apart from the Catholic leaders who objected to ESCR. None of the Catholic leaders expressed their views from the point of view of the 'intention of the research'.

(a) Response from Buddhist leaders

In general, the Buddhist respondents agreed that ESCR should be promoted based on the intention of the research, which seeks to help mankind.

All the Buddhist respondents agreed to the use of both surplus and research embryos in ESCR, except for respondent BR1 who opposed the use of research embryos emphasising respect for life.

BR1 argued that one cannot justify the research in the name of public good. Recall that it is BR1 who promoted the argument (i) that life begins from point of fertilisation. However, in view of the benefits of the research for all, he agreed that it is better to use the surplus embryos for a good cause rather than discard them on the grounds of not wasting the resources, and justifying that '*the embryo is going to die*

anyway'. However, BR1 cautioned that research should be conducted with proper care and warned against opening the floodgate.

On the other hand, respondents BR2, BR3 and BR4 agreed to the use of both surplus and research embryos in ESCR provided the intention is to help mankind.

BR2 argued that since the purpose of the research is to help mankind to attain a better quality of life, by utilising embryonic stem cells, then it should be allowed for the good cause. In her words:

> *…here you are trying to actually help a life by using some cells, to live a better life, to have a better quality of life*.

The aim of every Buddhist, that is to be free from suffering, was also highlighted by BR2. "*For us our main aim is to bring suffering to an end, to be free from suffering*". This means that if the aim of ESCR is to alleviate the suffering of people, it is encouraged.

In addition, respondent BR2 stressed that the aim of research is not to destroy life but to help mankind. Hence, the motive or intention of the research is what determines good *Karma*, said BR2.

Similarly, BR3 noted the point that Buddhism allows ESCR but with conditions, and that the conditions are based upon the intention of the research itself and the end result. BR3 added that Buddhism does not look into other reasons such as playing God, but rather believes in the intentions itself. As such, if ESCR is based on good intentions, then it is to be encouraged.

In addition, BR3 said that moral interpretation is very important. Even though the destruction of embryos in ECSR is inevitable, the intention behind the research is deemed to be important. BR3 added, "*The intention to help the public suffering from diseases is [regarded as] a higher purpose*."

BR4 was driven by the motivation and intention to do good, through the concept of donation. ESCR is in line with the notion of *Dana* (donation) and empathy, said BR4. "*Buddhism totally supports scientific development [in] doing some sort of research as well as helping people, where we call it Dana or donation*."

Thus, donating surplus embryos for research to save human lives represents a good intention and symbolises empathy towards the society. The overall objective of the research which benefits people is considered noble by BR4.

For the Buddhist respondents, the intention of the research seems to be the overriding concern, over the Islamic ethos which places emphasis on knowledge-seeking. As BR3 put it, *"...[seeking] knowledge for compassionate reasons? It goes back to intention*."

Similarly, BR4 viewed knowledge development as part of the intention of the research itself. BR4 stated that "*the overall aim and objective [of research should be] noble to benefit people…and able to educate*". Thus, the intention of the research is given utmost priority.

(b) Response from Hindu leaders

The Hindus were also motivated by the intention to do good. All the Hindu representatives approved ESCR but invariably limited it to the use of surplus embryos only.

HR1 stressed on the objective of doing research. HR1 cited verses '*Inbame sullege ellorum vaalga"* and *"Ellorum inbutrirukka ninaipadhuve-allamal veronrariyom Paraparame"* which basically means let everybody live in harmony,

promoting benefit for all. He also referred to the scriptures which call for the ending of suffering of people from various diseases.

HR2 referred to Hindu scriptures and texts like *Vedas, Manudharmashastra*, *Thirumanthiram* and *Periya Puranam*, and presented his argument through the Hindu concept of donating (*Dana*). Donating surplus embryos for research is in line with scriptural teachings which state that excess materials ought to be donated for a good cause.

It is interesting that three respondents, HR2, HR3 and HR4 recounted a story in *Periya Puranam* about a hunter who donated both his eyes upon seeing the bleeding eyes of the deity of Lord Shiva. When there is an excess of material goods, all the scriptures encourage the act of donation and sharing. Hence, the respondents said that the use of surplus embryos in research for the sake of humanity can be viewed in the same way.

Sacrificing for the betterment of others and for the benefit of humankind is encouraged in Hinduism, said HR2. He cited a verse from the *Thiruvasagam* text that says*, "You are the classical people and at the same time you are the most advanced people"* – which means promote scientific advancement while maintaining cultural values.

HR2 added that it is important to look at the end result. According to him, if the intention of ESCR is geared towards helping mankind, then it is regarded as good *karma* (leading to good consequences) although it may involve the destruction of surplus embryos.

On another important aspect, HR3 said that Hindu teachings related to *Dhayai* or *parivu*, which means compassion and caring, are applied when greater consideration is given to the mother's life. Accordingly, Hindu scriptures allow abortion if the mother's life is in danger. In the same vein, HR3 pointed out that this analogy could be

applied to endorse the use of surplus embryos for ESCR to find cures for people suffering from illness. However, HR3 asserted that the scientists should make do with surplus embryos and not to create research embryos.

Given its intention to save lives, HR4 did not object to ESCR but called for 'less destruction'. He cautioned that 'random killing' should be avoided, citing example from nature - carnivores are given teeth to kill their prey, but it is rather for the purpose of fulfilling their need for survival and not essentially, for the purpose of killing. Likewise, using surplus embryos for research to improve the health of people can be viewed in the same manner, as long as wastage is minimised and the research is carried out with good intentions, said HR4. To the question of whether the surplus embryos should go to waste or be utilised in research, he recommended the latter option given that the research is 'done with good intention'.

When asked whether ESCR should be encouraged for the purpose of knowledge-seeking and knowledge development, the Hindu respondents said that it all goes back to the intentions. If the intention is good, then it is encouraged in Hinduism. HR3 particularly asserted that ESCR is not valued as a knowledge-seeking endeavour, though Hinduism gives priority to research.

Table 4.4: A checklist on the categorisation of responses from the respective respondents according to themes

Respondent	Theme		
	Sanctity of life	'Do no harm'	Intention of the research
BR 1	/	/	/
BR 2	/	/	/
BR 3	/	/	/
BR 4	/	/	/
HR 1	/	/	/
HR 2	/	/	/
HR 3	/	-	/
HR 4	/	/	/
CR 1	/	/	-
CR 2	/	/	-
CR 3	/	/	-

4.3 Summary

Table 4.4 shows that not all respondents deliberated on all the themes identified, as it depended very much on their religious background.

All the respondents, regardless of religious backgrounds, gave importance to sanctity of life. They also deliberated on the principle of 'do no harm'. They offered their moral reasoning for not harming a living entity. Among the Hindu representatives, HR3 did not deliberate the ethics of ESCR from the notion of 'do no harm', as she restricted her views to the theme sanctity of life and intention of the research.

The Buddhists and Hindus gave priority to the potential and intention of the research itself, and thus ESCR is encouraged for a good cause. On the contrary, none of the Catholic respondents viewed intention of the research as a motivational factor to

approve ESCR. The strong stand on intention of the research among the Buddhists and Hindus differentiated them from the Catholics who emphasised on sanctity of life.

The interview guide was initially structured based on two domains of inquiry or values, (I) sanctity of life and (II) research is a knowledge-seeking endeavour.

Table 4.4 shows that all the respondents deliberated on the sanctity of life. However, their other reasoning and ethical concerns centred on emerging themes like 'do no harm' and 'intention of the research'.

For the Buddhist respondents, intention is the overriding value for all actions including research. With this effect, it seems that this viewpoint stands distinctly from the Islamic ethos which places emphasis on knowledge-seeking. Moreover, the overall aim of research (including scientific endeavours to advance knowledge), is viewed from the point of view of intention itself. Therefore, the good intention of research is regarded as a higher purpose.

Similarly, to the question whether ESCR should be encouraged for the purpose of knowledge-seeking and knowledge advancement, the Hindu respondents said that it all goes back to the intentions. According to them, the intention of the research should be given utmost priority, more than the endeavour to seek knowledge.

In conclusion, sanctity of life and principle of 'do no harm' remain as major concerns for all the religious groups. However, the notion on intention must not be disregarded when discussing Buddhist and Hindu ethics of ESCR.

CHAPTER 5: DISCUSSION ON ETHICAL CONCERNS & THEMES

Religious tenets, doctrines and sacred texts offer insights on matters concerning life and death. However, the advancement of technology, particularly in the biomedical field, has compelled us to re-examine the religious views. This is because the religious texts were written during the ancient era, at a time, when the current technological advancement was unknown. As such, one cannot find specific guidelines or direct answers for the ethical conundrum surrounding medical discoveries. With medical developments such as ESCR, there is a need to re-examine the religious texts. This is where the religious scholars and leaders offer their expertise in making moral interpretations of the sacred texts in light of today's modern medical discovery. The absence of an authoritative voice in major religions (except the Catholic community) has led to diverse views. In a pluralistic society like Malaysia, diverse views exist between different faiths and within the same faith.

With regards to ESCR, there is a conflict of interest between upholding the duty to respect and protect human life, with the need to alleviate human suffering, from a religious perspective (Knowles, 2009). The primary concern that needs to be dealt is whether the 5-day old blastocyst is to be regarded as a human life. To questions about when life begins, and as to whether destruction of embryos is justified for its potential to impact on medical sciences positively, we need to refer to the sacred texts.

Section 5.1 looks into the religious perspectives within the Buddhist, Hindu and Catholic traditions, alluding to the doctrine, scriptural texts and official positions on ESCR (if available). It is next to impossible to encapsulate all the religious resources; however, this researcher has examined the relevant works pertinent to the subject to give a clearer understanding on the religious principles and guidelines. The teachings

of various scriptural texts were reflected in the participants' responses. Their responses on the ethics of ESCR are juxtaposed with the fundamental beliefs of each faith.

Section 5.2 elaborates the varying viewpoints on ESCR. The research findings are interwoven with the literature to provide a comprehensive summary on the three themes identified in Chapter 4 – sanctity of life, 'do no harm' and intention of the research.

5.1 Ethics of ESCR According to Religious Tradition

The Buddhist, Hindu and Catholic ethics on ESCR are explored in this section [16], alongside with the arguments by the respondents.

5.1.1 Buddhist Ethics

Buddhism was founded by Siddharta Gautama Buddha (Buddha means the enlightened one). The writings of the texts are in Pali language. Buddhist traditions are divided into *Tripitika* (three baskets of teachings) which consist of Discipline (*Vinaya Pitaka*), Discourse (*Sutra Pitaka*) and the third one containing profound philosophy of Buddha's teachings, Absolute Doctrine (*Abhidharma Pitaka*) (Dhammananda[17], 2002).

Buddhism has many schools of thought such as Theravada, Mahayana, and Mantrayana. Theravada, the oldest school of thought is practiced widely in Malaysia as well as Thailand, Sri Lanka, Cambodia, Laos, Mynamar (Svendsen & Ebert, 2008).

[16] A part of the discussion appeared in my publications, as appended in Supplementary Section.
[17] It is worth mentioning that the author, Venerable Dr. K. Sri Dhammananda (1919-2006), was the late Chief Monk who served at Maha Vihara Buddhist Temple in Brickfields, Malaysia, circa 1952 till his last breath in 2006.

Buddhists are guided by the Law of *Karma* (law of cause and effect), which is in accordance with our actions, whereby good action leads to good *karma* and vice versa. Buddhism also places importance on *ahimsa*, the non-harming principle and thus has reservations on the destruction of life (Keown, 2004), as it can be viewed as generating bad *karma*. Here, a question worth asking is whether we consider harvesting stem cells from embryo as destruction of life that generates bad *karma*.

In Buddhism, respect for life is grounded in its spiritual destiny and not its divine origin (Keown & Keown, 1995). In addition, Keown and Keown (1995), also pointed out that Buddhism does not clearly explain personhood, as existence is viewed as 'continuum of changing states'. Thus, arguments on personhood are not significant when dealing with matters of life and death. They stated:

> life in any one existence begins at conception and ends at death: in the interval between these events, the individual is entitled to full moral respect, regardless of the stage of psychophysical development attained or the mental capacities enjoyed (Keown & Keown, 1995, p.266).

It would be rather difficult to adhere to a hard and fast rule when deliberating ESCR issues. This is because though the teachings state life begins at conception and full moral respect is to be accorded to individuals regardless of their physical and mental state, the intention behind utilising a 5-day old embryo in ESCR also needs to be examined. More importantly, Buddhism regards the intention to help mankind as a higher purpose.

Buddhism places emphasis on knowledge (*prajna*), and compassion (*karuna*), and its tradition of practicing medicine aimed at developing cures to alleviate suffering of human being is illustrative of this (Keown, 2004). Despite the absence of central authority, the fundamental values such as compassion and respect for life underpin the

Buddhist approach to medical ethics, argues Keown (2005). Compassion is the basis for all good actions, and thus we are able to accept, respect and treat others in their true being, argues Ratanakul (2010). Buddhism is also centered on values of non-injury, relief of suffering, 'no-self', and moral authority of intuition (Campbell, 1997).

The Malaysian Ti-Ratana Buddhist Society reflects upon Buddha's teachings based on the Four Noble Truths, acknowledges the need to study the cause of diseases in search of cures, thereby demonstrating compassion through the alleviation of the suffering that diseases always bring (Dhammananda, 2002). Hence, medical practice within the Buddhist tradition intrinsically encompasses developing such cures to alleviate human suffering (Keown, 2004). In this fashion, ESCR can be viewed as permissible. The intention of research was held as highly important by respondents BR2, BR3 and BR4.

Buddha's teachings *(Dhamma)* are based on Four Noble Truths. The Four Noble Truths recognises the prevalence of *Dukkha* (suffering) surrounding physical and mental suffering including birth, decay, death and disease and the need to analyse the causes of sufferings to find cure (Dhammananda, 2002, pp. 98-99). Similarly, since ESCR is aimed at treating debilitating diseases to alleviate suffering of people, it can be viewed as permissible.

However, even curing sickness will not end the 'karmic cycle' because Buddhists seek spiritual development as a higher purpose. In relation to that, Brannigan (2010) examined the Four Noble Truths with regards to suffering and healing, as illustrated in a parable about *Kisagotami* who went to see Buddha seeking medicine to restore the life of her dead child. Buddha instructed her to collect mustard seeds from every household not struck by death. Eventually, the girl was not able to find a single house not visited by death. This parable tells us that emphasis should not be on bodily matters only.

Another aspect of Buddha's teachings is The Noble Eightfold Path, which is also known as the Middle Path leading to righteous life through *Sila* (morality), *Samadhi* (Mental Culture) and *Panna* (Wisdom) which further consists of right speech, right action, right livelihood, right effort, right mindfulness, right concentration, right understanding and right thoughts (Dhammananda, 2002, pp. 102-104). This is very pertinent to ESCR, as one should have the right understanding about how it is carried out and right thoughts in embarking research for the welfare of people and not for self-gain while maintaining goodwill and compassion towards others. Buddhism's Noble Eightfold Path does not permit harm to sentient beings (Campbell, 1997). Embryo is not a sentient being, hence, it appears that ESCR is permissible.

There is no direct answer in the scriptures to questions surrounding the ethical conundrum of contemporary scientific discoveries. However, Buddha provided a four-fold decision-making method when faced with unanticipated questions, that is recourse to: (1) original texts, (2) derive rules consonant with original texts, (3) views of respected teachers, (4) using personal discretion, and judgment (Campbell, 1997, p. D23). Likewise, respondent BR3 said that any decision on a contentious matter must be referred to the following: the five precepts, karma, rebirth, principle of non-harming sentient beings, and intention.

Keown (2004) observed that though there is no central authority in Buddhism to declare its position, the faith has no objection towards adult stem cell research. Keown stated that Buddhism does not support ESCR involving destruction of human embryos. Respondents BR2, BR3 and BR4, however, differed from Keown's observation, expressing their support for ESCR.

While ESCR is in accordance with the Buddhism tenet [beliefs] of seeking knowledge and alleviating human suffering, there is also the line of thinking that it

actually causes harm (Knowles, 2009). Thus, there are diverse views in Buddhism rather than a single Buddhist view.

Buddhists are encouraged to seek truth and be free to interpret scriptures (Dhammananda, 2002, p. 78). At the same time, Buddhists are told not to blindly believe in anything but be open to criticism and analysis and to verify before accepting the *Dhamma* (Ratanakul, 2010). Buddhists are responsible for their own choices made in life. This is in accordance with Buddha's teachings, as illustrated in *Kalama Sutra*, on not to accept anything based on reports, traditions, and authority of religious texts alone, but instead to reject things that are unwholesome [*akusala*] and inflict harm, and to accept things which are good and wholesome [*kusala*] (Dhammananda, 2002, p. 356). The concept of wholesomeness was also referred by BR1, when arguing that research should be done without inflicting suffering on other entities.

At this juncture, it is important to note that Buddhist ethics do not change but it is the interpretations that evolve over time. The *Dharma* (truth) propounded by Buddha does not change under any circumstances (Dhammananda, 2002, p. 199). The morality is embodied in the five precepts, and the first precept reminds its followers to refrain from killing.

Buddhists view the human status as the only entity which can attain enlightenment and liberation from suffering. Due to *karma*, it is rare to be born as a human being and one should use the opportunity to escape from perpetual birth (*samsara*) by following Buddha's teachings (Campbell, 1997, p.D23). Good deeds lead to higher rebirths and of all the rebirths, 'human rebirth is the most precious one' because 'humans can seek ways to transcend suffering', states Ratanakul (2010, pp. 141-142). The 'preciousness of human life' was also expressed by respondent BR1, and thus objecting to creation of research embryos for ESCR.

Since Buddhism believes in rebirth, the new being bearing the karmic identity of a deceased deserves the moral respect of an adult human being (Keown, 2004). Human life begins when the *gandhabba* (karmic-life-force) fuses into the womb (Ratanakul, 2010). Buddhists do not believe in the existence of God and the concept of an eternal soul. Unlike Hindus, Buddhists do not subscribe to the existence of a permanent, God-created soul that transmigrates from one life to another. When the body dies, the energies or consciousness do not die, but takes another form of life resulting in a continuum (Dhammananda, 2002, pp. 131-132). The belief is that when the sperm, ovum and consciousness meet, life forms. For conception to take place, three things must invariably occur: the sexual union of parents (*sannipatita*), the mother in fertile period (*utuni*) and the presence of the *gandhabba* (consciousness of being) (Boisvert, 2000). Now, how are we to apply this in the context of embryos cultured in the petri dish? In view of this, three respondents, BR2, BR3 and BR4, hold the opinion that ESCR is not immoral since life begins at a later stage when the consciousness of embryos has developed. Human beings are the product of the non-material (consciousness) and material matter. Buddhists do not call it reincarnation because there is no permanent soul that moves from one life to another (Dhammananda, 2002, p. 134). To counter the concept of soul, Buddha came up with *Annata* doctrine which means no-soul, no-self and no-ego (Dhammananda, 2002, p.155). Buddhists goal is to attain enlightenment which frees them from the cycle of rebirth and attain *nirvana* (final goal of salvation).

Dhammananda (2002, p. 309), and (Ratanakul, 2010, p. 147), respectively referred to five conditions in the teachings of Buddha which must be present to constitute the evil act of killing: (1) a living being in the womb (2) knowledge or awareness it is a living being (3) intention of killing (4) effort to kill and (5) consequent death. The five conditions need to be present to constitute an act of killing, and in the

absence of any one of the conditions, the act will not constitute killing. These precepts are applied to deliberate on abortion issues. However, these conditions can be applied to ESCR as well. A 5-day old embryo is not a living being, and therefore ESCR does not breach the first condition. In view of this, respondents BR2, BR3 and BR4, hold the opinion that ESCR is not immoral since life begins at a later stage. BR4, who based his arguments on these five conditions, asserted that ESCR does not constitute killing.

In Buddhism, in line with the notion of *Dana*, which means charity or generosity, donating embryos for research represents good intentions, empathy, and desire to save lives. The act of saving lives even at the risk of sacrificing one's life for the well-being of others is regarded as a higher virtue (Dhammananda, 2002, p. 221). A *Bodhisatta* (a person accumulating merits to be Buddha in future) donates life to save others, whereby the right to life can be transferred to others, and in the same manner ESCR can be justified through the category of 'life donation', argues Promta (2004).

Promta (2004), referring to Theravada school of thought (which most Buddhists in Malaysia belong to), also makes a distinction between Buddhist personal ethics and social ethics. The use of stem cells in research which could mean destroying 'life' may be viewed as socially moral if it is intended to cure the disease of a human person but this contradicts with Buddhist personal ethics which emphasises that destroying the embryo is a violation of its right to life. In Buddhist social ethics, the concept of benefit and happiness are emphasised. Promta (2004) pointed out the dilemma between the benefit of the greater number of people and the violation of embryo's rights. Promta (2004) highlighted the 'enforced donation' found in Buddhist social ethics, in which a rape victim has the right to abort the child, and the child is perceived as enforced donation. In the same fashion, ESCR which entails the destruction of embryos can be justified for the benefit of the society.

By applying the fundamental precept of Buddhism against harm and killing, the Singapore Buddhist Federation made its stand from the point of intention to help humankind. The federation supports hESC research since the intention is to help humankind, but if it is meant to make money it is deemed unethical (Singapore BAC, 2002, G-3-33)

Dhammananda (2002, p. 352) wrote that Buddhism is the bridge between religious and scientific thoughts as it encourages Man to discover and realise his 'potentialities' within himself and the environment. This implies the openness of the faith in embracing vast changes in scientific research.

Nevertheless, on the whole, we can infer that as much as Buddhism is open towards medical advances aimed at helping humankind, reservation still exists as many are looking out for alternatives like adult stem cells. This was also observed in this study where one respondent, BR1, contended that sanctity of life of the 5-day old embryo has to be protected, and thus the need to look for alternatives.

Notwithstanding this is the liberal view of the three respondents, BR2, BR3 and BR4, who supported ESCR and did not see any moral difference between the use of either surplus or research embryos.

5.1.2 Hindu Ethics

Vedas, the oldest sacred text in the world, written in Sanskrit, is organised into collections called *Samhita* (Svendsen & Ebert, 2008). Canonical scriptures include the *Upanishads* [philosophical texts] (Lipner, 1989). *Bhagavad Gita* is the Holy book for the Hindus. Seminal writings on law include *Dharmasutras* and *Dharmasastras*; and

other sources are *Puranas* (repositories of folklore), *Mahabharata* [epic] and medical works of *Caraka* and *Susruta* (Lipner, 1989). *Caraka Samhita* (a first century text), and *Susruta Samhita* are the most important texts in Indian medical ethics (Tai & Lin, 2001). *Dharmasastras* are concerned with moral duties revealed in the authoritative text, *The Laws of Manu* (Crawford, 1974).

Dharma is the ethical code for behavior while *Karma* is a causal law in which all good and bad acts will face consequences in the next life (Firth, 2005). If you do good deeds, you will gain good *karma* and vice versa. Here, it is postulated that though destruction of embryo is considered as bad *karma*, the intention itself aimed at saving lives can be perceived as good *karma*. In light of that, one may argue that using surplus embryos for stem cell research is justifiable.

In Hinduism, suffering is experienced in cycles of reincarnation or rebirths, so Hindus aim to attain *moksha* (liberation of soul and eternal union with God) which ends the cycle. The fundamental belief in Hinduism is that a human person is made up of two disparate but conjoined principles; the spirit [interchangeably used as soul in most contexts] (*atman*) and matter (*prakti*), which come together to form distinctive individual (Lipner, 1989).

In Hinduism, conception is believed to be the beginning of the soul's rebirth from a previous life (Knowles, 2009). Hindus believe the soul (*atman*) transmigrates from one life to another and thus the [present] life is seen as a transition between the previous one and the next (Firth, 2005). In other words, the soul is always there, only the body dies. The soul does not perish when the body dies but it moves to another body. According to the English translation of *Thirukkural* (Book of Law), there is a verse in chapter 34, verse 338 that states, "the bond between the body and the soul is like a bird leaving an egg shell". This verse emphasises impermanence - that the soul quits when the body dies (Rajaram, 2009). At least two respondents, HR1 and HR2,

regard a 5-day old embryo as being merely in a vegetative state, and stressed that research involving surplus embryos is allowed. This is because a 5-day old embryo is not fully formed for the soul to dwell, thus rejecting the view that a life has already developed.

Interpretations vary on when personhood starts, as one line of Hindu tradition places personhood between three to five months of gestation (Knowles, 2009). This concurs with the views of respondents HR1 and HR2, who stated that ensoulment occurs after 90 days or later, signifying presence of life.

On the contrary, the canonical scripture, *Upanishads*, declares that the soul is already present in the sperm (Svendsen & Ebert, 2008). This can be extended to mean that there are Hindus who see the embryo as a person from the point of conception.

A detailed description of what happens at conception is outlined in Chapter 6 in *Caraka Samhita*:

> In the event of intercourse thus described, the individual soul (*jiva*) descends into the union of semen and (menstrual) blood in the womb in keeping with the (karmically produced) psychic disposition (of the embryonic matter) (Lipner, 1989, p. 54)

If this traditional view is taken into account, ESCR would not be permitted. Accordingly, the embryo is viewed as a 'spirit-matter composite' from the moment of conception. This seems to give researchers no provision to extract stem cells, even from a 5-day old embryo.

The notion of consciousness right from the first month to the ninth month of pregnancy is deliberated in *Susruta Samhita* (Lipner, 1989). *Caraka Samhita* denotes that consciousness is present in the fertilised egg itself (Lipner, 1989). As such, there is no clear cut explanation indicating when consciousness manifests in an embryo (or

foetus), and therefore we cannot justify the destruction of a 5-day old embryo based on the tradition alone.

In general, Hinduism is protective of the embryo. The Sanskrit language refers to abortion as *garbha, bhruna-hatya,* and *vadha*, which is to be taken as a reprehensible killing (Lipner, 1989, p.42). The *Brhadaranyaka Upanishad* (8-9 B.C.E) regards the slayer of embryo as wicked and despicable, the same way that the *Kausitaki Upanishad* regards abortion as a serious act of murder (Lipner, 1989, p. 44). This aspect of Hinduism was also highlighted by respondent HR3, when referring to embryo research.

Most discussions in Hindu ethics are made with regards to the issue of abortion and the same fundamental values (protection of embryo and personhood) may be applied in relation to the ethics of ESCR. However, Hindu ethics balances this view by adopting the *Dhayai* or compassion concept which encourages compassion towards the mother whose life may be endangered. This line of thinking was observed when respondent HR3 argued that the use of surplus embryos may be allowed considering that many lives can be saved through ESCR endeavours.

Hindu deliberations on ESCR may be found in Swami Tyagananda's (2002) lecture at the Massachusetts Institute of Technology Religious Activities Centre. The human soul is the spiritual component and Hindus believe life begins at conception. However, Tyagananda (2002) cited an example in Hindu mythology arguing that destruction of life is bad *karma* unless it is done in "extraordinary, unavoidable circumstances, and for greater good". Here, can the destruction of embryo in ESCR for the purpose of alleviating pain be considered as "extraordinary, unavoidable circumstances, and for greater good" is a question worth asking.

The Singapore Hindu Endowments Board allows the derivation of stem cells from 5-day old embryos to establish stem cell lines and considers the use of embryonic stem cells aimed at protecting life and finding cures for diseases as acceptable.

However, the Board also made it clear that killing a foetus is a sinful act (*bhruna-hatya*). The Board stated that: there is 'no non-acceptance to use embryonic stem cells' (Singapore BAC, 2002, G-3-2). It appears that the Board is cautious in stating its stand pertaining to embryo research.

Besides the law of *Dharma* (ethical code) and *Karma* (causal law), Hinduism has always emphasised *ahimsa*, principle of non-violence, that was popularised to the world by Mahatma Gandhi. Here, it can be argued that the 5-day old embryo is not a sentient being and the subsequent destruction of embryos in ESCR is not against the principle of *ahimsa*. In line with that, it is worth noting that respondent HR4 also called for 'less destruction' as far as ESCR is concerned.

In the Book of *Sabha Parva* in the epic *Mahabharata*, there is a quote that for the welfare of a family, a member can be given up; and for the sake of a village, a family can be sacrificed; and likewise for the welfare of a nation, a community can be sacrificed. ESCR may look acceptable under this belief, though it does not represent the universal view in Hinduism. Respondent HR2 also pointed out that sacrificing for the welfare and benefit of others is encouraged in the scriptures.

Crawford (1974, pp. 222-223) pointed out that as far as the society is concerned, Hindu ethics (*varnasrama-dharma* and *sadharana-dharma*) is 'reflective and contextual' in its approach during emergency conditions and exceptions are made for the sake of others. This aptly relates to ESCR, whereby although use of embryos in research leads to destruction of embryos, ESCR can be regarded as morally permissible considering that its purpose is saving lives of people.

There is no authoritative voice in Hinduism to pronounce religious positions on stem cell research (Pew Research Centre, 2008). This is not surprising as the Hindu tradition is governed by a plethora of sacred texts, leaving the responsibility to the devotees to decide for themselves.

On the whole, there is no clear-cut stand made by the Hindu community pertaining to ESCR and openings are there for more fruitful deliberation on the matter.

5.1.3 Catholic Ethics

As there are many denominations within the Christian faith, it is beyond the scope of this study to cover the perspectives of all the denominations. Thus, this study only explores the Catholic perspective, which is the major denomination in Malaysia.

While the Buddhists and Hindus are guided by a plethora of scriptures, the Holy Bible remains the primary source of Catholic teachings, besides the encyclical letters and positions pronounced by the Vatican, the official teaching authority. The doctrines are unreservedly adopted by Catholic Churches in Malaysia and throughout the world.

The Catholic faith holds steadfastly to the belief that life starts from the moment of conception. Thus, life is sacred from that point onwards and the conceptus deserves the same respect and dignity to that of a human being. *Declaration on Procured Abortion 1974*, paragraph 12 says:

> In reality, respect for human life is called for from the time that the process of generation begins. From the time that the ovum is fertilised, a life is begun which is neither that of the father nor of the mother; it is rather the life of a new human being with his own growth" (John Paul II, 1974).

It is to be noted here, that the aforementioned doctrine highlights that a new life begins from the moment of fertilisation. Furthermore, a statement from the Vatican

document, *Donum Vitae* in 1987 (No. 5 I 5) in response to the use of embryos obtained by IVF for research purposes declares:

> It is immoral to produce human embryos destined to be exploited as disposable biological material (John Paul II, 1987).

In the same doctrine, it was emphasised that 'unconditional respect' is demanded from the moment the zygote is formed, and that the 'human being is to be respected and treated as a person from the moment of conception' (No. 5 I 1). This is congruent to the previous teachings in the *Declaration on Procured Abortion 1974* affirming the notion of respect for human embryo.

The Catholic tradition is said to be affirmative in the stand concerning inviolability of human life as expressed in *Evangelium Vitae* (The Gospel of Life) (John Paul II, 1995). The Commandment in the Bible "Thou shall not kill" is to be extended to an unborn child as well (No 61, p. 61). However, the question worth asking is whether this commandment can be applied to the 5-day old non-sentient, unborn 'entity' as well.

Defending the life of the weak and threatened is raised in the Bible (Exodus 21:22). Again, the question worth asking is whether we can extend the concept to those unborn 5-day old embryos, regarding them as weak and defenseless, thus needing protection. Interestingly, referring to Book of Exodus, respondent CR2 expressed the view that human dignity is all about defending the weak and voiceless in society, and he believes it goes for the embryos as well.

Evangelium Vitae (John Paul II, 1995) doctrine contains Biblical verses which affirm the notion of inviolability of life. Some of the Biblical verses quoted in the doctrine are:

No 39, p. 39:

"*For God made man in his own image*" (Genesis 9:6)

This recognises that every being is the creative work of God, and thus human life is sacred right from the beginning.

No 42, p. 41:

"Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth" (*Genesis* 1:28).

This shows that God entrusted Man to promote life on Earth. But, how do we apply this when we are confronted with ESCR which involves destruction of embryo in order to save lives?

No 44, p. 44:

"Before I formed you in the womb I knew you, and before you were born I consecrated you" (*Jeremiah* 1:5)

This can be loosely interpreted that personhood in God's eyes has begun even before reaching the embryo stage.

No 44, p. 44:

"*For you created me in my inmost being, you knit me together in my mother's womb*" (Psalm 139:13).

This implies the dignity of the unborn child signifying the awe and reverence of God's creation.

No 83, p. 84:

"*I am fearfully and wonderfully made*" (Psalm 139:14)

According to John Paul II (1995), this tells us to accept every individual as a 'wonder'.

With all the aforementioned disciplinary traditions, [Pope] John Paul II (1995) declared in the *Evangelium Vitae* (No 62, p. 63) that 'abortion constitutes a grave moral disorder, since it is the deliberate killing of an innocent human being', further affirming that these are not papal infallibility but laws transmitted by Church tradition and taught by universal Magisterium.

Now, a question well worth thinking about is how do we apply this stand which clearly prohibits the killing of an embryo, in the context of ESCR? The Pontifical Academy for Life (2000) has released the 'Declaration on the Production and the Scientific and Therapeutic Use of Human Embryonic Stem Cells'. This Declaration is the Catholic view of the moral status of embryonic life. To the question as to whether it is moral to produce living human embryos to obtain stem cells, the Declaration states that the 'human embryo from the moment of union of sperm and egg is a well defined identity…and thus cannot be considered as a simple mass of cells'. In reference to that, respondent CR1 said that "*human life in the form of embryo should not be treated as a subject or product*".

Similarly, in an address at the International Congress on Organ Transplants, [Pope] John Paul II (2000) announced that:

> …insofar as they involve the manipulation and destruction of human embryos, are not morally acceptable, even when their proposed goal is good in itself…but rather make use of stem cells from adults…in order to respect the dignity of every human being even at embryonic stage.

The recent doctrine released by the Vatican, *Instruction Dignitas Personae* endorsed by Pope Benedict in 2008 responding to bioethical questions (Benedict, 2008), asserts that the teachings of *Donum Vitae* twenty years ago remains applicable. *Dignitas Personae* reiterates that using embryos left from infertility procedure for purpose of treating diseases is unacceptable because embryos are treated as biological material resulting in destruction (No 19). Thus, the practice of IVF itself faces objection from Catholics as a huge number of embryos are sacrificed in every IVF cycle (No 14). Such an act is also against natural procreation and the unity of marriage itself (No 12). The Catholic faith sees life as a gift of God created through the reciprocal love between the spouses. Thus, artificial reproduction involving human intervention is not acceptable.

Therefore, the argument of using surplus embryos for ESCR instead of being discarded has not gained acceptance in the Catholic community as they perceive the destruction of embryo for research in the same manner as throwing those embryos into the trash. Similarly, respondents CR1, CR2 and CR3, unanimously forwarded their opposition towards the use of surplus embryos for ESCR.

The origin of stem cells must be taken into consideration, asserts [Pope] Benedict (2008) in *Dignitas Personae*. The method of obtaining stem cells from human embryos (which is argued as a living being) resulting in destruction of embryo is considered immoral, while obtaining stem cells from other sources which do not impose harm on the subject such as adult stem cells, umbilical cord and cadaveric foetuses (died of natural causes) are considered moral (Benedict, 2008, No 32). Throughout the doctrine, the notion of human dignity is explicitly emphasised.

Thus, it is very clear that the Catholic faith opposes ESCR because it does not protect and treat embryos as worthy of respect and dignity. The sanctity of life is a norm associated with human dignity, is well-accepted within Catholic community

(NBAC, 1997, pp. 49-50). Thus, the entire argument revolves around the sanctity of life, in which life is a sacred gift of God.

However, there are liberal Catholic theologians in support of ESCR. The human embryo prior to primitive streak is not considered to be a human person or has potential to be one, as a certain amount of development is required to accord status to a conceptus (Farley, 2000, 2004). Other liberal Catholics including Jean Porter and Christian Kummer, also appear to support ESCR (Reichhardt et al., 2004). There are also Catholic ethicists who whilst protecting the dignity of foetus and embryo, have been in support of ESCR in good conscience (Peters, Lebacqz & Bennett, 2008, p. 58).

Farley (2004) pointed out that those official religious documents 'leave open the question of the moment when the spiritual soul is infused'. Unlike Islam, there are no Biblical verses which clearly explain when ensoulment occurs and thus it is taken that ensoulment occurs at conception. The majority of Catholics who oppose ESCR, are not troubled by this argument because it is better to accept that ensoulment occurs at conception - giving the benefit of doubt - rather than being speculative because no one can come up with a definite answer as to when the soul is infused into the body. This was observed in all the respondents, particularly CR3, who concurred that "*since we do not know when human life begins, it is best to provide protection of embryos from earliest stage of conception*".

In addition to the above, it is to be noted that the Catholic tradition has always been unified in its stand that demands commitment to community including the poor, marginalised and the most ill (Farley, 2001). This raises concerns as to whether the benefits of ESCR will actually benefit the poor. Respondent CR2 also called the mushrooming of ESCR practice as a lucrative venture. While we cannot run away from this, Prieur et al., (2006) offered guidelines to be used by Catholic institutions in implementing ESCR, and also pinpointed that there will always be a 'legitimate

dimension' to make some profits from researches as long as the therapies are made available to the deserving patients.

The ethics of funding ESCR was also discussed by Doerflinger (1999) from a Catholic viewpoint. Doerflinger (1999) asserted that obtaining stem cells from embryos raise serious moral concerns and articulated the significance of exploring alternatives like adult stem cells. In another paper, Doerflinger (2002) asserts that excluding embryo from 'personhood' invites far ranging impacts.

We are exposed to diverse views from the three testimonies presented in the United States National Bioethics Advisory Commission (NBAC) in 2000 by Margaret Farley, Kevin Wildes and Edmund Pellegrino representing the Catholic tradition. Farley (2000) in her testimony argued that ESCR can be carried out without the need to sacrifice the Catholic tradition, 'to respect human life, promote human well-being…oppose commercialisation of human life and promote distributive justice'.

On the other hand, Wildes (2000) in his testimony to the Commission, said that use of surplus and research embryos is itself destruction of human life for the sake of research. Wildes also acknowledged the long line of reflection pertaining to 'moral standing of early human life'. Wildes agreed that it is hard to confer personhood at embryonic stage but, by and large, one's view on status of early embryo within Catholic tradition is very much tied to church authority.

Meanwhile, Pellegrino (2000), emphasised the teachings that 'human life is a continuum from the one cell stage to death', and deserves dignity at every stage. Pellegrino (2000) pointed out that the Catholics reject the idea that moral status is accorded by degrees of development. Furthermore, he raised the point that embryos created specifically for research do not have a different moral status than the ones created for infertility treatment because in both the cases, the embryos are treated as means to an end and the 'inherent moral status is violated'.

As such, bearing the fact that there exists various 'moral reflections', Mendiola (2001, p.122-123) invites Catholic moral theologians and scholars to assess the various moral implications and reflections on ethics of ESCR. Mendiola believes that toleration and 'proportionate' reasoning may allow Catholic theologians to engage in debate on ethics of ESCR which is consistent with the principle of inviolability of embryonic life, but not totally dependent on it.

At the global level, we are presented with stands made by Bishop congregations in countries embarking on ESCR. United States Conference of Catholic Bishops (2012) emphasised that the Catholic Church has always been in support of ethically responsible stem cell research (SCR), such as research on adult stem cells and umbilical cord, in countries like Australia, South Korea and United States. The Conference reiterated its opposition to ESCR as we must respect lives at all stages, especially when the underlying goal of the research is also to save lives. Similarly, the Catholic Bishops' Joint Bioethics Committee (2005) representing the Bishops' Conferences of England and Wales, Scotland and Ireland, supports a 'total ban on destructive embryo research' even if it is meant for treating diseases; reflecting the established teachings of the Catholic Church.

Due to its influence, Catholic teaching against ESCR is seen as a 'blanket prohibition'. However, it is to be noted that the Catholic Church does not oppose stem cell research per se, but it is more concerned about the [embryonic] sources from which the stem cells are derived (NBAC, 1999, p.99). The major concerns among the Catholics with regards to ESCR are: the moral status of early embryo, and the need for distributive justice in order to reach to the poor (NBAC, 1999, p.100).

On the whole, it is clear that the Catholic tradition opposes destruction of embryos for stem cell research (SCR). However, recent developments have paved the pathway for liberal scholars to raise their concerns to what they believe, because the

teachings are rather dogmatic in pronouncing positions in light of medical advancements.

Besides that, the emphasis on human dignity associated with the notion of sanctity of life**,** right from the moment of conception is prevalent in the Catholic teachings as compared to other mainstream religions in Asia such as Buddhism and Hinduism. Thus, a constructive discussion evaluating the Church teachings and doctrines to weave an understanding between the realms of Science and religion is crucial at this point of time.

5.2 Varying Viewpoints of Major Religions on ESCR

Ethics of ESCR according to Buddhist, Hindu and Catholic tradition were presented in the previous section, alongside with the moral interpretation of the respondents. This section discusses the rationale and motivational factors behind the ethical responses of the Catholic, Buddhist and Hindu leaders, which shape their moral standing on ESCR[18].

The ethical conundrum of ESCR centres on the question about beginning of human life and the moment of ensoulment. Religious tenets are sought to answer these questions. For this study, the ethical discussion centres on the views of Buddhism, Hinduism, Catholicism (major denomination in Christianity) and Islam. This section presents the viewpoints of those religions.

The central focus of religious convictions and apprehensions are on the identity, dignity and manipulability of embryos (Cole-Turner, 2003, p.13). Accordingly, the complexity of arguments gives rise to ‘indecisive’ and ‘inconsistencies’ of standpoints.

[18] A part of the discussion appeared in my publications, as appended in the Supplementary Section.

For instance, there is 'inconsistency' in the way society reacts to embryo research for therapeutic use, but allows infertile couple to generate embryos through infertility treatment and to discard the surplus embryos (Cole-Turner, 2003, p.16).

The question about when life begins has become the bone of contention when dealing with the ethical issues on ESCR. This is where the religious views, to a large extent, have influenced the direction of the discussion. The controversy lies not in stem cell research but specifically in hESC which involves the destruction of human embryos for research purposes.

For the purpose of this discussion, a significant referencing has been made to the book *Sacred cells: Why Christians should support stem cell research* by Peters et al. (2008), and a book chapter on "Religious perspectives on embryonic stem cell research" by Jafari et al. (2008).

Past studies reflected on formation of primitive streak on day-14 as the reference point in development of human life. However, the morality of ESCR varies considerably according to religious interpretations on moral status of embryo. Jafari et al., (2008, p.81) summarised varying religious point on the moral status of an embryo. Accordingly, the Roman Catholics hold the belief that embryo acquires full moral status from the moment of conception. The Buddhists and Hindus are more concerned about 'ramifications to spiritual life', taking into account karmic considerations, thus making ESCR possible. On the other hand, Islam holds that a 5-day old embryo at blastocyst stage has no moral status.

This study advances three value concerns underlying the ethical reasoning of Buddhist, Hindu and Catholic leaders which subsequently shape their respective moral standings regarding ESCR. These are the 'sanctity of life', the principle of 'do no harm' and the notion of 'intention of the research'.

5.2.1 Sanctity of life

All the respondents voiced their ethical concerns deliberating on the value of sanctity of life. The Buddhist and Hindu respondents were divided as to whether a 5-day old embryo constitutes life.

Keown (2004), a renowned writer on Buddhist ethics, points out that Buddhism does not support research on human embryos that entails the destruction of human life. However, in this study, the Buddhist respondents (except BR1), view that life only begins when there is consciousness, which takes place at a later embryonic stage, and thus forwarded their support for ESCR. The Hindu respondents, (except HR3), generally, believe that the presence of soul marks the real presence of life, and that ensoulment only occurs around 3 months from time of fertilisation according to Hindu scriptures like *Thevaram* and *Thirumanthiram*.

It appears that concerns on sanctity of life are much more prevalent among the Catholic respondents, who stressed that life begins from moment of conception.

The principle of sanctity of life was discussed by Kohl (1974). Accordingly, the Roman Catholic is grounded on the belief that human life is sacred, emphasising the following argument that "one ought never to kill an innocent human being because life is sacred". This argument leads to the core question as to whether the destruction of a 5-day old embryo consisting of hundred cells is viewed as termination of human life. Here, it is important to note that the Catholic respondents in this study were of the view that discarding surplus embryos or destroying embryos for ESCR, both constitute termination of life.

The Vatican is the official teaching authority of the Roman Catholic Church, and has become the 'unappointed voice of global Christianity' (Peters et al., 2008, p.111). In Catholicism, the Magisterium is the teaching authority, which is vested by

the Pope, and by the Bishops who are in communion with the teachings. As such, reasonings pertaining to moral issues are delegated in Vatican, before Declarations and Encyclicals are released, and abided by the national Bishop Congregations of every country and the Catholic churches worldwide.

In general, it is taken as Gospel truth by the Roman Catholics that an embryo is a human life from the moment of conception which deserves protection and respect (though they recognise the fact that the embryo is not a human person yet). The Catholics also believe that the soul, which is the sign of life, is present from the point of fertilisation; thus, a 5-day old embryo is a living soul. This definition came in 1869 when Pope Pius IX declared that an embryo has full human status from point of fertilisation, superseding the medieval Church belief that an embryo acquires a soul only when is in a recognisable human form (Lachmann, 2001). Although there is no scientific evidence on the moment of ensoulment, the argument is to refrain from harming the conceptus and thus the need to accord protection right from the beginning. The Vatican takes a 'creationist position' that God breathes in individual soul to each person (Peters et al., 2008, p.122). This has led to the view that personhood is tied to conception (Peters et al., 2008, p.124).

Today, the majority of Catholics has rejected infertility treatments, and opposes the use of embryos in stem cell research, whether it is surplus or research embryos – establishing a consistent standpoint. The Catholics, however, have no objection to adult stem cell research.

The principle of human dignity, is associated with sanctity of life in Roman Catholicism. This was also pinpointed by all the Catholic respondents in this study. The question is whether the embryos have dignity, which warrants protection against destruction for research purposes. Peters (2001, p.137) in his analysis on theology and dignity, concluded in his paper that the defense of human dignity for the 'defenseless

embryos' appears to be dribbling away, when we see the potentials of ESCR in uplifting the quality of human health.

The concept of dignity from the moment of conception is articulated by the Vatican, which affirms the moral protection of embryos from the beginning. This is because, the presence of soul makes the zygote sacred, and the sacredness gives dignity to early embryos, thus making prohibition to scientists from conducting research on embryos as old as 5-days (Peters et al., 2008, p. 217). This view was also clearly put forward by all Catholic respondents in this study, highlighting that embryonic life is sacred. There is a counter-argument on the relation between the spiritual soul and moral dignity teased out by 'embryo protectionists'. The presupposition that the presence of a 'spiritual soul' marks the moral personhood begs the question that "if individuality matters to ensoulment, then ensoulment cannot be said to occur at conception" (Peters et al., 2008, p. 149).

Nonetheless, the Biblical teachings about concerns for the weak and vulnerable, including the unborn, place embryo protection within the ethical framework (Peters et al., 2008, p. 50). In line with the Biblical teachings in the Book of Exodus that champions the rights of the harmless and defenseless, some of the Christians extend this view to accord protection for early embryos. This was also pinpointed by one of the Catholic respondent, CR2, that the society has social responsibility to protect the weak and voiceless embryos as much as we champion for the rights and dignity of another human individual. However, the question as to whether concepts on human dignity and human rights can be extended to the early embryos, requires further evaluation.

In short, it is clear that the Catholics have forwarded outright objection on ESCR. They maintained the notion of the sanctity of life and emphasise inviolability of early embryonic life. As such discussions are consistently skewed towards limitations

on the use of embryonic stem cells. Human embryonic stem cell research is proscribed. Catholicism, therefore, stands apart from Islamic, Buddhist and Hindu ethics of ESCR.

The deliberation by the Islamic scholars also centres on the principle of sanctity of life. However, unlike the Catholic Church, the Islamic scholars (Sachedina, 2000; Fadel, 2012) referring to the Quranic verses on stages of human development maintain that the soul is only breathed into the body when the foetus is 120 days old in the womb. Therefore, a 5-day old embryo does not have a soul, and therefore it is not a human life yet. In line with that, the *fatwa* issued by the three Islamic Fiqh (Jurisprudence) Councils in Jeddah, USA and Jordan supports the use of surplus embryos for ESCR, but prohibits the use of research embryos (Nordin, 2011). The Malaysian *fatwa* is also in congruent with that. We can safely say that the concept of personhood in Islam develops with time, referring to the ensoulment process that only occurs at the fourth month.

5.2.2 'Do no harm'

The notion 'do no harm' embodies the medical ethics principle of 'non-maleficence', that is to refrain from doing harm first, before doing any good. The question is whether the research on a 5-day old embryo inflicts harm on the embryo.

In this study, all the respondents, in particular the Hindus and Buddhists proposed that the religious principle of 'do no harm' needs to be considered when dealing with human embryos. Respondents deliberated on the principle of 'do no harm' on two key points, that is not to inflict harm on a living entity, emphasising *ahimsa*, and secondly not to harm the soul in an embryo. The Buddhists and Hindus applied the religious principle of *ahimsa* when deliberating on the permissibility of ESCR. *Ahimsa*, loosely translated as non-violence and non-hurting, is similar to the clause 'do no harm'

(Jafari et al., 2008). The argument is that one should abstain from doing research that induces harm on a human life, before doing any good. Now, whether the research on a 5-day old embryo inflicts harm on the embryo depends on the moral evaluation of the religious leaders.

The Hindu respondents deliberated from the aspect of ensoulment. The Hindu respondents, HR1 and HR2, referring to scriptures, generally argued that for a 5-day old embryo, the soul is not present and functional, thus there is no necessity to object to using surplus embryos for ESCR.

This is where the Buddhists tend to differ, as they do not subscribe to the concept of an eternal soul. The Buddhists believe in non-self material, which is the karmic energy (consciousness) that travels from one life to another. The Buddhists respondents BR2, BR3 and BR4, except respondent BR1, presented their argument from the aspect of consciousness. Since the 5-day old embryo has not developed consciousness yet, the Buddhists in general argue that research on embryo does not inflict any harm, and thus allays the restrictions on ESCR. The only difference from the Hindus is that Buddhists do not refer to the term 'soul'. Instead, they counter the concept of soul with '*annata*' or concept of non-self (Dhammananda, 2002, p.155). Though it is termed '*annata*' by the Buddhists, this researcher deduces that the underlying idea is the same, that is the life energy is not present in a 5-day old embryo, and thus eliminating moral qualms against ESCR.

On the other hand, the Catholics believe that an embryo is a living soul from moment of fertilisation. According to the Catholic respondents, research on embryos inflicts indescribable harm both to embryos and the souls in them. Thus, ESCR is viewed as violating the principle of 'do no harm', and thus it is rejected.

At this juncture, it is worth noting that in the United States, an organisation called *Do No Harm* founded in 1999 [also known as Coalition of Americans for

Research Ethics], is lobbying against research involving destruction of human embryos, and maintaining that human embryos should not be used as a means to an end. Accordingly, the 'do no harm' principle is violated in ESCR (The Coalition of Americans for Research Ethics, 1999). The organisation joins other Catholic bioethicists in upholding the dignity of embryos (Peters, 2001, p. 129).

The principle "first, do no harm" is also demonstrated in Islamic teaching supported with a Hadith:

There should be neither harming nor reciprocating harm

(Hadith – *Sunan Ibn Majah* 2340).

However, it is beyond the scope of this study to explore on this Islamic value, and further evaluation is recommended in future studies.

5.2.3 Intention of the research

Intention is an intrinsic aspect in Buddhism and Hinduism, referred to as *sankalpa*, which is beyond mere goals and objectives. An action is deemed as good *karma* because of its intentions. The Buddhists and Hindus give priority to the intention of the research.

It is worth highlighting that none of the Catholic leaders underscored their views from the point of view of intention of the research as the Catholic Churches oppose the destruction of embryos in ESCR.

The Hindu perspectives on biomedical reasoning are clearly presented by Crawford in his book *Hindu bioethics for the twenty-first century*. According to him, the Hindu bioethics is based on three basic principles:

(i) The transcendent character of human life expressed through the principles of sanctity of life and quality of life

(ii) The duty to preserve the health of individuals and community

(iii) The duty to rectify imbalances in the processes of nature, and to repair states that threaten life and well-being of humans

(Crawford, 2003, p.6)

The aforementioned principle (i) seems in line with the findings of this study which reflect the responses of the Hindu respondents on the preciousness of human life. More importantly, the Hindu respondents emphasised on intention, in line with the abovementioned principle (ii) and (iii): the potential of the research aimed at saving lives, improving health and maintaining the well-being of the community, and placing importance on spiritual element - in accordance and in harmony with the Law of *Karma* and *Dharma*.

For the Buddhists and the Hindus, it is difficult to obtain a definite perspective on ESCR as both the religions do not have a central authoritative voice to decide on ethical matters. It is also important to note that debates about embryo research tend to focus on the doctrine of *karma*, a view shared by both Hindus and Buddhists (Jafari et al., 2008). Both Hinduism and Buddhism are guided by the Law of *Karma*, which stresses that every act can be deemed good or bad depending on its consequences. Thus, the primary focus of the Hindu and Buddhist respondents is on the intention of the research itself. If the "intention of the research" is to help humankind, then it is considered ethical by Buddhists and Hindus (Hug, 2006). Jafari et al. (2008) also noted that the discussion pertaining to ESCR according to the Buddhist and Hindu thinking, centres on the intentions of the scientists involved and the potential cures, ensuring a compassionate course for all.

It is along this line of argument that this researcher draws parallel between the motivationally driven intention of the research by the Hindus and Buddhists, with the Islamic ethos which supports research as a knowledge-seeking endeavour. Similar to Islamic ethics, Hindu and Buddhist teachings also deliberate strongly from the point of saving human lives, giving priority to alleviating suffering in human persons. Islam views that donating surplus embryos for research aimed at saving lives as an obligation and as an act of faith. As summarised by Peters et al. (2008), Islam emphasises that we have a moral obligation to improve the quality of health and well-being of human persons, and as such it justifies the support for ESCR. Research is a knowledge-seeking activity, a noble Islamic ethos. This is deduced within Hinduism and Buddhism as intention of the research for good causes. Hindu and Buddhist perspectives give importance to the potential benefits of the research on human populations and this appears quite similar to the Islamic consensus on the ethics of ESCR.

In Islam, the concept *niat* - which means intention and sincerity - is more important than the act itself, and it determines whether an act is sinful or not. However, this study does not focus on this Islamic value, and further evaluation is recommended in future studies.

From this study, two broad ethical guiding principles may be derived from Buddhist and Hindu thinking regarding the issue of ESCR. Firstly, Hindu and Buddhist ethics deliberate from the intention of saving lives. The good intention that drives stem cell research, is held as noble and in high esteem according to both traditions.

Secondly, the concept of donation is employed by the Buddhists and Hindus when arguing for the use of surplus embryos in ESCR, the same way that arguments have been made in special circumstances that allow abortion. The mother's endangered life must be given greater weight than the foetus. In the same manner, the right of a

rape victim to abort the child is perceived as 'enforced donation' (Promta, 2004). In the same fashion, using surplus embryos for research is permitted.

In this sense, the findings of this study differ from a paper by Keown (2004) where he states that generally all Buddhists oppose research on human embryos**.** Reflection by Promta (2004) on this issue is especially enlightening because he offers fresh interpretation through the philosophy of Buddhist social and personal ethics, which is also observed in this study where a diversity of views exists within Buddhist and Hindu tradition.

5.2.4 Summary

In summary, Islam views a 5-day old embryo as not ensouled to mark the presence of life, and therefore surplus embryos can be used in ESCR. On the other hand, the concept of personhood in Buddhism and Hinduism remains unclear. Buddhists and Hindus are more concerned about 'ramifications to spiritual life' (Jafari et al., 2008) and therefore ESCR is allowed if it is in accordance with concept of *ahimsa*. Here, it should be noted that Catholicism stands apart from the rest opposing the use of surplus and research embryos, as Catholics believe ensoulment which marks the presence of life begins from the point of conception. Further studies are required to evaluate whether the concept of ensoulment is sufficient to examine the ethical standpoints on ESCR from religious point of view.

Peters et al., (2008) highlighted the fact that as far as embryo protection is concerned, the Islamic theology does not support the Vatican position that associates ensoulment with dignity. Islam does not warrant protection of a human being for the 5-day old embryos. Catholicism explicitly opposes ESCR, regardless of the source of

embryos. This is demonstrated in this study where Catholics maintain their belief on the inviolability of life which begins at earliest stage of fertilisation - largely influences their stand. Walters (2004) has observed that the presence of a 'centralised authority' in Catholicism may be responsible for adjudicating ethical disagreements, unlike Hinduism and Buddhism where there is no central authority, resulting in a diversity of views. Foong (2011) also wrote that the absence of a single authoritative voice has led to interpretations of holy texts.

Taking stock of the ethical viewpoints of Buddhist and Hindu leaders it appears that the donation of leftover IVF embryos for research is generally accepted. Islamic deliberations also point to this conclusion. The obligation to save lives via stem cell research is also the strong factor that supports ESCR.

It is observed that the Hindu and Buddhist respondents take up a more nuanced position and are more inclined to accept ESCR in reflection of the notion of saving lives, alleviating suffering and the noble intentions of research. A diversity of views is seen to exist within Buddhism and also Hinduism. The Buddhists and Hindus in Malaysia have not pronounced any formal positions regarding the ethics of ESCR. Interestingly, these religious leaders embrace the advantage of an absence of a central authority which encourages individuals to seek personal understanding from the scriptures[19]. Buddhism and Hinduism do not indoctrinate or impose the values on their followers. Unlike the Buddhist and Hindu respondents who gave full but cautious consideration to the benefits and potential of ESCR, the Catholic respondents cannot be dissuaded from any of the official Church teachings on the sacredness of human embryonic life.

Every religion believes in the sacredness of life and the moral duty not to harm a human being. While the very practice of ESCR itself is seen as a good act in view of its

[19] This information appeared in my publications, as appended in Supplementary Section.

overriding aim to seek cures for diseases, the nature of the research which entails the destruction of human embryos has elicited ethical questions. The question as to where to draw the line, meaning, when the embryo deserves full moral protection remains elusive. Nevertheless, all the respondents affirmed that they are not against scientific advancement but have concerns where it impinges on human life.

All the respondents, regardless of religious backgrounds, have underscored their views from the vantage point of sanctity of life. Respondents also deliberated on the principle of 'do no harm'. They either discourage research that inflicts harm on living entities or allow ESCR with reservations. The Buddhists and Hindus gave priority to the potentials and intention of the research itself, thus, ESCR is encouraged for a good cause. On the contrary, none of the Catholic respondents viewed the intention of the research as a motivational factor to approve ESCR. The Buddhists and Hindus gave their priority to the intention of the research, which set them apart from the Catholics who emphasised on sanctity and inviolability of life.

On the whole, there is a wide spectrum of religious views pertaining to the use of embryos in stem cell research. Buddhists and Hindus allow ESCR as long as the cardinal virtue of *ahimsa* is upheld. Research must also proceed from good intentions. Meanwhile, Catholics are concerned about inviolability of embryonic life. Catholics believe that moment of ensoulment which marks the presence of life begins from point of conception. As such, Catholicism explicitly opposes research on human embryos.

Findings show that the three value-laden themes dominate the moral reasoning of the religious leaders namely: sanctity of life, do no harm and intention of the research. This study has also shifted the focus of ethical debate from moral status of embryo to other ethical concerns such as intention of the research, thus giving recognition to the benefits of research itself.

As Tyagananda (2002) puts it, religious perspectives involve interpretations and how one deals with the modern discoveries with possibilities not thought of in the ancient doctrines. Religious beliefs in the sanctity of live appear to clash with human desire to alleviate suffering and cure diseases (Reichhardt et al., 2004). In general, taking into account the multi-religious make-up, religious groups have indicated that research to alleviate suffering is encouraged rather than discouraged. Thus, it has become highly important that fundamental ethical issues in ESCR transcending religion needs to be addressed in order to formulate rules and guidelines (Reichhardt et al., 2004).

CHAPTER 6: RESEARCH FINDINGS & DISCUSSION

In line with the second objective of this study, table 6.1 summarises the ethical viewpoints of the respondents on the use of surplus and research embryos in Malaysia. An analysis follows, alongside with literature on the moral distinction between the two embryo sources. The literature helps to situate my research as well as to contextualise the viewpoints of the religious leaders (respondents) in the broader ethical debate on ESCR.

Finally, in line with the third objective of this study, table 6.2 summarises the standpoints and recommendations of respondents towards attaining consensus on ESCR in Malaysia. An analysis follows, alongside with literature on the challenges in arriving at a consensus.

On the whole, existing literature alongside with the research findings are presented, to capture the ethical debates on ESCR.

Table 6.1: Review of the ethical viewpoints of religious leaders pertaining to use of surplus embryos and research embryos for ESCR in Malaysia

Respondent	Data extract for ethical viewpoints on:			
	Yes /No	**Use of surplus embryos**	Yes /No	**Use of research embryos**
BR1	Yes	*Because the embryo is going to die anyway… Instead of wasting it completely knowing that is going to die, then is more useful if use it for some kind of research.*	No	*…we respect life, and in the process half way you destroy it, you know from the beginning you going to destroy it, you are not respecting life*
BR2	Yes	*If it [spare embryo] can be used, may as well be used. Why discard? Why destroy something that you can use it for good purpose.*	Yes	*So, they are creating these [embryos] with good intention. So, you are donating something for a good cause. It is ok, this only cells. And we are intentionally creating these cells, to help another being.*
BR3	Yes	*Using surplus embryos, acceptable if with good intention and good clinical practice. Must get the consent of that couple.*	Yes	*No problem… I have to keep to this to see that the intention has to be good.*
BR4	Yes	*Destroying is really a waste, if using in curing people and helping saving lives of people, is a wonderful thing.*	Yes	*Purposely creating but you are creating with the permission of people (donors), right? There's no life forming into human, creating to help save someone's life (cure diseases). I don't see very clearly negative part for the religious point of view.*
HR1	Yes	*Is allowed, because even if you don't do research on it, it will [be] discarded. Instead of discarding without any good purpose, if you use it for good purpose, is allowed, towards the benefits.*	No	*…the embryo has the opportunity to become the body later for the soul to come in. But, here, from the beginning is very clear that you don't want these embryos to develop into body. So, your purpose is very wrong. You purposely creating the embryos not to allow its objective, the opportunity for soul to come in.*

Table 6.1, continued

Respondent	Data extract for ethical viewpoints on:			
	Yes /No	**Use of surplus embryos**	Yes /No	**Use of research embryos**
HR2	Yes	*In a lot of Puranic stories when there's excess, they will donate, they share with the poor. In other words, rather than throwing [embryos] away, why not use for research purpose for good cause.*	No	*If option to create embryos for research purpose only, I don't think Hinduism will encourage that, for a simple reason that [when] use of surplus embryos can be encouraged, why another one to create for research only? This one to create for laboratory purpose, it means we have another intention. We don't know what their intention is. Their intention is good or bad, we're not sure.*
HR3	Yes	*It is there, the Dhayai, parivu (caring), there is a loophole. Ideally the wasted ones is sort of what we can use.*	No	*…they don't have to become avaricious to create new ones. From Hindu point of view they are incurring bad Karma.*
HR4	Yes	*If surplus embryo can be used properly, by all means, but avoid wastage as much as possible. If is the question of going to wastage and using for research, that (option) probably is better*	No	*Creating should be limited to needs, must not be misused. Personally it should be avoided.*
CR1	No	*The church is not against SCR, but against ESCR because of destruction of human lives… I consider using both [surplus and research embryos] as equally evil.*	No	*The church is not against SCR, but against ESCR because of destruction of human lives.*
CR2	No	*There's no lesser evil between two immoral situations [surplus and research embryos]. Firstly Catholic Church is against IVF.*	No	*You cannot intentionally create life and expose it to destruction.*
CR3	No	*In first place, don't do it.*	No	*'No' to ESCR*

6.1 Arguments on the Use of Surplus and Research Embryos

After presenting at length the ethical standpoints and deliberations of the major religions on ESCR, it is only appropriate now to zoom into the arguments with regards to the two sources of embryo. This section is in line with the second objective of this study, which is to investigate the ethical viewpoints of the Buddhist, Hindu and Catholic leaders with regards to the use of surplus and research embryos for ESCR. Earlier in Chapter 4, the analysis of data has already shown some findings in line with the second objective, on whether the respondents generally permit the use of surplus and research embryos for ESCR, or not.

In reference to Table 6.1, specific arguments from the respondents with regards to the two embryo sources are now examined further, followed by relevant literature. From Table 6.1, the following can be summarised:

1. Generally all Buddhists representatives approve ESCR and do not see any moral difference between the use of either surplus or research embryos, except for one Buddhist leader who did not agree to the use of research embryos.
2. All Hindu representatives approve ESCR but only surplus embryos to be used. The use of research embryos should be prohibited.
3. All Catholic representatives plainly disapproved ESCR, regardless of whether surplus or research embryos are used.

One Buddhist respondent, BR1, agreed to the use of surplus embryos for research on the grounds that '*the embryo is going to die anyway'*. He argued that it would be better to use the embryo for research rather than discard it as waste. Nevertheless, he objected to the use of research embryos pointing out that the act denotes disrespect for life. He questioned the need to create research embryos, saying

that,*"*[if] *you know from the beginning you going to destroy it, you are not respecting life"*

On the other hand, three Buddhist leaders, BR2, BR3 and BR4, approved the use of both surplus and research embryos. Their support for the use of surplus embryos in research is driven by the intention of the research. For instance, BR2 asked, "*why discard something that can be used for a good cause*".

Similarly, BR3 agreed that using surplus embryos in research for good intentions is encouraged, as long as there is consent from the reproductive couple. BR4 reasoned that it is a wonderful thing to use those surplus embryos which are slated to waste, to save lives of people instead.

The three Buddhist leaders, BR2, BR3 and BR4, did not see any difference in moral connotation on the use of research embryos. For instance, BR2 said, "*intentionally creating to help another being*" is allowed. BR3 said it is allowed, given the good intention. Similarly, BR4 said there is no restriction from the religious point of view to create research embryos for stem cell research on the grounds that there is no life in a 5-day old embryo, and it is encouraged for the purpose of saving lives.

The Hindu leaders, however, tend to be more cautious in stating their standpoints and did not want the permissibility given by them to be regarded as a blanket approval. All the Hindu leaders generally agreed that the use of surplus embryos is encouraged for various reasons. HR1 was driven by the benefits and purpose of research, saying that it is better to put the surplus embryos to good use in researches instead of discarding them. Whilst HR2 cited *Puranic* stories, saying that donating for a good cause is encouraged, and so is the donation of surplus embryos for research. HR3 explained that using surplus embryos in research to help humanity is in line with the concept of *Dhayai* or compassion towards others. HR4 agreed to the use of surplus embryos to 'avoid wastage'.

All the Hindu respondents, however opposed the use of research embryos in stem cell research. For instance, HR1 objected to the act of intentionally cultivating embryos for research because according to him, creating the embryo and then destroying it in the name of research prevents the opportunity for the soul to fuse into the body. This is viewed as against the will of nature. HR2 also did not support as he is skeptical about the intention of cultivating embryos solely for research. He questioned the need to create research embryos when the use of surplus embryos for ESCR is generally encouraged.

HR3 claims the act only denotes the greed of human beings. HR3 said, "*They don't have to become avaricious to create new ones. From Hindu point of view they are incurring bad Karma."*

HR4 concurred that creating embryos should be avoided to prevent acts of misuse.

The Catholic respondents did not frame their arguments according to the sources of embryo, as they had adopted a consistent standpoint against ESCR, regardless of whether it is surplus or research embryo. All the respondents argued that the Church is against ESCR. CR1 viewed the use of surplus and research embryos as 'equally evil'. CR2 said there is no 'lesser evil' between the two options, and added that one cannot intentionally create life and then expose it to destruction. Respondent CR3 gave an outright "no" for ESCR. The respondents were not against stem cell research per se, but against ESCR because of the 'destruction of human lives'. Hence, from the Catholic perspective, the argument that the use of surplus embryo is the 'lesser evil' is not defensible.

At this juncture, it is interesting to note that three out of the four Buddhist respondents did not see any moral difference between the use of surplus and research embryos, and they approved both. The Catholic respondents too did not see any moral

difference between the two embryo sources, but gave an outright disapproval to ESCR because according to them research on both is equally destructive. This is where we find one's religious beliefs shape the decision-making process. Given the same argument, the Buddhists and the Catholics arrive at opposing standpoints. Meanwhile, the findings show that though the Hindu respondents were motivated for different moral reasoning, they only supported the use of surplus embryos in research. Since the Buddhist and Hindu respondents were aware that they were forwarding their standpoints representing their community, they did not want to appear dogmatic; however they also did not support scientific researches for the sake of advancement without taking careful consideration of the impact of the research on their value system.

The Islamic ruling in the form of *fatwa* has been incorporated in the Malaysian guidelines. The official Islamic position on ESCR is that it is allowed only if conducted on surplus embryos. The use of research embryos is prohibited. It is worthy to note that the *Malaysian Guidelines for Stem Cell Research and Therapy* (MOH, 2009b) has spelt out that the physician responsible for the infertility treatment and the investigator harvesting human embryonic stem (hES) cells should not be the same person, and that informed consent is necessary during the donation of blastocysts for ESCR.

Having viewed the perspectives of the religious leaders in Malaysia with regards to the use of surplus and research embryos, the next section presents the global views on the matter.

A study conducted at Chicago Fertility Centre showed that 73% respondents opined that the use of surplus embryos for stem cell research should be allowed (Jain & Missmer, 2008). Another study in Victoria, Australia reported that couples who opted to donate embryos for research were driven by the intention to help in the advancement of science and also did not want to waste the embryos (Hammarberg & Tinney, 2006). Hug (2008) studied the attitudes of IVF patients regarding donation of embryos for stem

cell research, and factors influencing the IVF couples to donate their surplus embryos for research. Accordingly, among the factors that motivate couples to donate surplus embryos for research are, 'knowing the research purpose', 'couples are at the end of IVF treatment', and 'having non-viable embryos for reproductive treatment' (Hug, 2008).

It is argued that the use of surplus embryos for research indeed gives proper respect to the embryos which is manifested by using them in research which allows their existence to have [positive] impact on the world, rather than just to discard them (Manninen, 2007, pp. 90, 98, 101). Manninen further added that respect for surplus embryos entails the 'moral permissibility' of using them for ESCR. In view of IVF practices that create thousands of surplus embryos which will be disposed, it is only respectful that these surplus embryos are used in potentially life-saving researches.

The value of a surplus embryo is 'extrinsic' rather than 'intrinsic', hence allays the objection for utilising the surplus embryos for stem cell research in light of the greater moral good in alleviating suffering of human beings (Gentry, n.d.)

The Ethics Committee for the American Society of Reproductive Medicine while holding to the view that an embryo is a potential human being worthy of respect, affirms that ESCR is ethically acceptable if it is likely to benefit human health provided the research is carried out within stipulated guidelines and consent obtained from donors (Braverman et al., 2009). It is therefore important for the researchers and scientists to reciprocate the value that donors invest in embryo donation through their work attributes (Dickens & Cook, 2007).

The United States National Bioethics Advisory Commission (NBAC, 1999) states that research which inevitably involves the destruction of surplus embryos ought to be allowed to develop cures for life-threatening or severely debilitating diseases. The report also states that there is a moral difference between creating embryos specifically

for research purpose and for the purpose of reproduction. The United States NBAC expressed that federal funding for the creation of embryos solely for research is not recommended (NBAC, 1999, p. 71). In reference to this, Macklin (2000) argues that the report relies on "ethical intuition" which motivates the distinction between the surplus and research embryos. Macklin further argued that if ESCR which involves destruction of human embryos can be justified, then the same reason can be used to justify the creation of embryos for research. Macklin highlighted that creation of research embryos can be permitted taking into account the considerations that human embryos lack moral status, and also for the benefit of research aimed at alleviating suffering of human being from diseases. Childress (2004) who also examined the United States NBAC report, concludes that due to the evolving nature of the field, it is too early to rule out 'any particular source of stem cells' or to adopt one source as the best.

In an orderly organised reasoning, Curzer (2004) attempted to counter the conservative positions against ESCR. Curzer argues that harvesting stem cells from surplus embryos which eventually will be discarded or what he termed as 'doomed embryo', should not be mistaken as a case of sacrifice. Harvesting stem cells from 'slated-to-be-discarded embryos' is not unethical because those embryos would have been discarded anyway. He also countered the position opposing to creating embryos solely for sake of harvesting stem cells for the reason that embryos have right to life, is counter-intuitive itself.

Steinbock (2000) cautioned that respect for human persons should not be confused with respect for embryos. Accordingly, Kant's maxim which states human persons cannot be treated as means to their ends cannot be applied to human embryos as they 'do not have ends of their own'. Steinbock also argued that there is no moral difference between research that uses surplus embryos and embryos explicitly created

for that purpose. She concluded that the value of research (aimed at providing treatments and saving lives) is what determines it is in alignment with the principle of respect for embryos, and not the source of the embryos.

The arguments supporting the idea that embryos should be treated with respect derives from the principle of human dignity (Bortolotti & Harris, 2005). It is in line with Kant's maxim that human life should never be treated as means. Therefore, the line of thinking inspired by the Kant's formulation is that human embryos cannot be treated as means. However, limitation exists to Kant's idea on the notion of 'instrumentalisation' as a violation of human dignity, because it cannot be applied in all contexts of life [which includes research on embryos]. Thus, Bortolotti and Harris concluded by stating that the objections against research on human embryos on the grounds of violation of human dignity are unconvincing as the argument relying on dignity (an attribute of human life) - is 'arbitrary'.

The arguments often put forth against creating research embryos are: 'instrumentalisation of human life' and 'violation of human dignity' (Devolder, 2005). In view of that, Devolder (2005) argued that the 'discarded-created-distinction[20]'(d-c-d) which allows research on surplus embryos but not on research embryos, is an inconsistent viewpoint and it is intuitive since the defenders of d-c-d grant a relative moral status to human embryo. Devolder concluded that approach to ESCR which accepts the use of research embryos is 'compatible with the feelings, attitudes and values' of the defenders of d-c-d, to allow ESCR to develop treatments for the well-being of human.

[20] The 'discarded-created distinction' has been forwarded stating that there is a moral difference between doing research on surplus embryos originally created for reproduction purpose, with the research embryos created with the intention of only using them for research (Parens, 2001).

Table 6.2: The standpoints and recommendations of religious leaders with regards to attaining consensus for ESCR in Malaysia

Respondent	Data extract (interview excerpts)	
	Standpoint for general consensus	**Recommendation**
BR1	*...you don't need a religious authority to indoctrinate the value in you. Well, it is good if it can lead towards a consensus. But, if you cannot come to a consensus, leave it. I believe, as time goes on, the knowledge and skills we get, then we will come closer and closer. All religious committees to come closer and closer, eventually can lead to a consensus.*	*Is not a matter of should and shouldn't be allowed. Is a matter of advisable or not advisable. So, from Buddhist perspective, as long as you do your research without destroying life, you can go ahead. If your research destroys life or keeps harming on life, then it is not advisable. My advice is that they can still continue the research while searching for other means*
BR2	*Buddhists don't react, we respond. We don't challenge anyone's belief. They go with their belief, we go with our understanding. But if someone is doing a good thing with our understanding, if we can support, we support. And I am so glad, that the Muslims have given permission for scientist to carry out their research on stem cells with the extra embryos.*	*You all can go ahead as long as it is for the benefit of humankind. And not hurting, or harming or exploiting but doing it for the good.*
BR3	*We have different values. So, I see that every religion has different values. Even those who agree will agree on different aspects. Like what you see in Buddhism. Even if they agree, the reasons for agreement are different. And if they disagree, the reasons for disagreement different. The consensus need not be on agreement. You can have consensus on disagreement. You agree to disagree. So, we can have consensus within the Buddhist community, and within Catholic community, so there's a guideline.*	*If [ESCR] done with good reason, with compassionate reason, there's no reason to object. The 5 precepts, with good intention, and good clinical practice, no reason to object.*

Table 6.2, continued

Respondent	Data extract (interview excerpts)	
	Standpoint for general consensus	**Recommendation**
BR4	*Of course, each and every religious belief and teachings based on their holy books. Nobody can say is wrong. You can speak in behalf of your belief and text books. Eventually right or wrong it will come depending on their belief.* *You can have general consensus, but you must come with open mind, you must able to accept what other people to say. Because you are based on own principle, it might contradict other beliefs and questions certain things.*	*ESCR and lab things, should keep on going day by day. Then only able to progress, give opportunity to develop. If you stop totally, no progress or future in that area.*
HR1	*…as far as our concern, we don't see any of the religions doing anything harm. It is their opinion or their proof of their doctrine, not doing any harm. Under that aspect, no conflict…* *consensus is a bit difficult, each one has own doctrine, but one thing can do is somehow or rather a basic consensus can be arrived, but I don't think so it can be generalised. But as long as we believe any religion is for common good, which is also found in Hinduism, so under that aspect, certain consensus can be arrived.*	*ESCR permissible with restriction in certain aspects, where the guidelines from Hinduism have to follow like the Law of Dharma, Karma, and ahimsa.* *My recommendation is though that various scholars have various responses to this, overweigh the benefits and drawbacks and lead to more towards a consensus for the betterment of mankind and ESCR.*
HR2	*Of course we have some common understanding in the religions, there may be one or two differences, we have some common values which can be shared among all races. So, if you talk about the value-systems, it is quite encouraging.* *that's why consensus in the sense that we must take some commonalities in their own religions. Definitely to get consensus from everyone is difficult. But if we pick up the commonalities in all these major religion, if that is acceptable, this should be conducted.*	*If the matter is understood, I am very sure the Hindu community will support for the betterment of the society. So, overall, this should be supported/research and more studies should be undertaken…* *should encourage on this ESCR, for simple reason, intention of this ESCR- it is for the benefit of people. For the community, for the future generation, more advanced research should be done.*

Table 6.2, continued

Respondent	Data extract (interview excerpts)	
	Standpoint for general consensus	**Recommendation**
HR3	*We have to take into considerations all the religions. We have to respect and accept all religions. That's a good sign to delay the situation (decision). There's a balance. For us, the intention counted.*	*As I said earlier, the one going to waste, that part can be used for research. What people vouch for, to come to proper consensus. Take care of spiritual values and also saving humans.*
HR4	*The value systems of all religions must be respected. We cannot go override anyone. Neither do we want them to override us.* *The general consensus will be become very wide because many will have different views. It will be wide in the sense that they will agree for a particular religion what they are allowed to do. I think it should be a national consensus but respecting the respective religions.*	*ESCR should carry on, but there's need for consultation.* *I think is high time Malaysian government look for alternatives, but before they do that they consult the rest. The scientists themselves must be involved in it. And medical research people must also be involved while the religious and ethnic groups also be invited for initial discussion.*
CR1	*I cannot make moral judgments of other religions of ethical code. I can only make moral judgments of my ethical code. The reason behind this, every religion has their ethos. The real danger of making a cross-religious boundaries or a moral stand is that there will never be an end to it. We cannot say another tradition, their moral ethic code do not deserve the respect. All we can say this is what we believe.* *The danger of having such gathering, if they take the stand, or come to a consensus, are you saying that all different religions must compromise? Because the other approach on consensus - instead of a unity of faiths becomes a uniformity of views.*	*The stand of the church is always the same, not only in a particular country. Is universal. Is a NO, NO, NO* to ESCR. *I would advise them or recommend them to abandon the projects and do other Stem Cell Research, Adult Stem Cell Research.*

Table 6.2, continued

Respondent	Data extract (interview excerpts)	
	Standpoint for general consensus	**Recommendation**
CR2	*I am respectful of what they believe as much as I expect them to be respectful of what I believe. Most importantly, what is lacking is the Malaysian government has to regulate, make laws.* *I don't think any religion or any of the main religions promote destruction of life. I think that is going to be a challenge to come into consensus. For me consensus means very simple - that Embryonic Stem Cell Research not to be allowed.*	*Adult Stem Cell Research, explore that. Stop destroying life. There would not be any justification to destroy life.*
CR3	*Finally, when it comes to conflict of values e.g. between right of embryos and right of scientific research for knowledge, some official acknowledged authority will have the last word. But there's none, except for Catholic Church teaching*	*Following Church teaching, I think Adult Stem Cell Research is the way to go*

6.2 Challenges Arriving at a Consensus

In reference to Table 6.2, this section addresses the third and last objective of the study, which is to examine the fundamental arguments and standpoints of the Buddhist, Hindu and Catholic faiths pertaining to ESCR, with regards to obtaining a consensus in Malaysia. The arguments of the respondents are explored, followed by literature.

The moral status assigned to human embryo is based one's understanding of when human life begins, and it is very much influenced by religious beliefs or worldviews binding every country, making it difficult to attain consensus (Isasi et al., 2004). In his paper "Is a consensus possible on stem cell research?", Brock (2006) stated that the main obstacle to consensus is the nature of ESCR which involves the destruction of human embryos. Brock argued that this moral obstacle does not survive scrutiny, and offered his arguments in support of ESCR. However, he also acknowledged that the arguments broadening support for ESCR will not change those who hold onto their religious belief that the human embryo warrants full moral status. Therefore, one cannot expect a full consensus on this issue.

The varying ethical arguments on the status of human embryo and about conception of life, make it hardly possible for a consensus between religions (Frazzetto, 2004). The destruction of human embryos during research remains the primary concern of religious authorities with regards to ESCR.

In line with that, there are two 'appropriate' contributions that the religious communities can offer to the public debate on ESCR (Waters, 2003, p. 20-21). Firstly, religious communities need to play their role in the expansive public context in which debate on ESCR is waged. In the debate, the religious communities need to refine their moral resources taking into account the vision of public and offer alternatives which binds together the human communities. Secondly, religious communities need to

express the principal beliefs, convictions and their moral assessments on ESCR in a clear and forthright manner.

The United States NBAC (1999) report summarised the presentations of the religious scholars on their ethical reflection of their respective traditions on ESCR. NBAC noted broad areas of agreement as well as disagreement. It is not surprising that the panelists did not reach unanimity on aspects of ESCR.

Meanwhile, UNESCO IBC (2001, p. 13) recognises the need to debate the subject on ESCR at national level, and at appropriate regulatory levels, to enable expression of broad range of views, and wherever possible to allow a consensus on the limits of permissibility of ESCR, besides encouraging on-going process of education and dialogues in society.

With that caveat in mind, this last section explores the standpoints and recommendations of the religious leaders from the Buddhist, Hindu and Catholic traditions with regards to attaining a consensus on matters concerning ESCR in Malaysia.

Generally, all the respondents from the three religious backgrounds, forwarded the view that they respect each other's faith and the provisions expressed by each faith pertaining to ESCR. However, they were of the view that obtaining a consensus concerning ESCR involving all the religious authorities is difficult as each religion has different value-systems.

For instance, HR1 agreed that every religion promotes good values and do not promote 'harm'. However, he cautioned that it is not possible to come up with a general consensus as each faith has its own set of doctrines. Perhaps, a basic guideline outlining the values would help but it cannot be generalised, says HR1. He added that certain aspects can be identified on the grounds that every religion promotes 'common good'.

In line with this, HR2 stressed that to get a consensus would be difficult as there are differences of viewpoints. He instead suggested picking up the commonalities and common values of all major religions which can be shared among all races to derive a guideline. If that is acceptable, then steps can be taken towards realising a consensus, said HR2.

To that point, HR4 asserted that value-systems of all religions must be respected and one should not override the other. HR4 also pointed out that the general consensus will be wide, to incorporate different viewpoints of what is allowed within every religion. As such, it would no longer be a general one, said HR4. He added that a national consensus needs to incorporate views respecting every religion.

The Catholic respondent, CR1 cautioned the danger of attempting a general consensus, as he sees that it would lead to a point of 'compromise' between the religious groups in order to come out with a guideline in black and white. He argued it would not be a 'unity of faiths', but rather a 'uniformity of views'. He asserted that each of them can only make moral judgments based on their religious ethos and should not be on 'cross-religious boundaries'. CR1 added that the respondents cannot evaluate the moral ethic code of another tradition, but they can only forward their recommendation based on their own teachings.

Meanwhile, Hindu respondent, HR3, expressed relief that the opposition from the Catholic community is a 'good sign to delay' any policies to ensure a check-and-balance until the issues revolving ESCR are explored thoroughly. She added that considerations should be given to all religious beliefs, and that the Hindus primarily count on good intentions.

Respondents CR2 and CR3 also said that it would be difficult to reach a consensus. CR2 acknowledged that each religious tradition promotes respect for life and disapproves destruction of lives. CR2 acknowledged that there is a challenge to

come to a consensus, as he (representing the institution) is respectful of what others believe as much as he expects other religious communities to be respectful of what he believes. He also expressed concern that Malaysia lacks regulation and laws on ESCR. However, CR2 stressed that a consensus, to him, would simply mean prohibiting ESCR.

Meanwhile, CR3 stressed that when it comes to conflict of values between the right of embryos and freedom of scientific research, there is no other option other than to disallow ESCR.

Diverse views were observed within Buddhism and Hinduism. BR3 cautioned that even those who agree will have 'different reasons for agreement' and those who do not agree will also have 'different reasons for disagreement'. He suggested that the consensus need not be on points of agreement but could be on point of disagreement. Or else, BR3 said that each religious tradition could come out with its own guideline, which is within the Buddhist community, Catholic community and so forth.

Similarly, BR2 stressed that in line with Buddhists teaching not to react but to respond to changes, BR2 said that they do not challenge anyone's belief, but rather go with their own beliefs and understanding and give support where it is possible. BR2 also welcomed the ruling by the Islamic community which permits the use of surplus embryos for research, and she sees it as a good start.

BR4 stressed that in order to come up with a general consensus, all stakeholders must gather with an open mind and be willing to accept the views of others. He said that one can only speak on behalf of one's belief and understanding of sacred texts. This is definitely a long-term goal, since pre-conceived notions of the religious authorities would hamper a fruitful deliberation on policies. Thus, according to BR4, it seems like the only way to go is to first accept the differences within and between every faith in a pluralistic society.

Meanwhile, according to BR1, one does not need a religious authority to indoctrinate the values in a person, but it comes with practicing the fundamental beliefs. With progressing time, knowledge and skills, he hopes that the religious communities will then come closer towards attaining a consensus.

Besides making known their standpoints for a consensus regarding ESCR, the religious leaders also gave their recommendations. Three Buddhist respondents, BR2, BR3 and BR4, recommended that ESCR should be continued for the benefit and progress of mankind, as long as it is done with good intention, promotes non-harming principle, and for 'compassionate' reasons to improve the health of mankind, and obeys the five precepts in Buddhism.

Similarly, Hindu respondent, HR1 recommended that as long as ESCR is carried out in line with the Law of *Karma*, *Dharma* and *ahimsa*, it is encouraged for the betterment of society. He urged the religious leaders to weigh in the benefits and drawbacks before attempting for a consensus on ESCR for the betterment of mankind.

HR2 also expressed hope that the Hindu community will support and encourage ESCR which is aimed at benefiting mankind, if the subject matter is well understood by the religious communities. Thus, he encourages more studies to be undertaken on this issue.

HR3 did not dissuade from her standpoint, that is surplus embryos can be used for research, but more importantly she stressed that 'spiritual values' need not be abandoned in pursuing ESCR.

Finally, HR4 reflected the need to look for alternatives, besides getting the scientists and medical representatives to sit together with the religious authorities to discuss about ESCR. According to HR4, ESCR can be carried on, but first, the Malaysian government needs to consult the concerned parties.

A Buddhist leader, BR1, who emphasised sanctity of life, said that ESCR is not a matter of whether it 'should or should not be allowed', but whether it is 'advisable' or not. His recommendation is that if the research destroys lives or harm lives, then the research is not advisable and it is time to 'search for other means'.

In a unanimous stand which is not surprising, all three Catholic priests, expressed their full support and recommendation towards exploring alternatives like Adult Stem (AS) cell research and called for a stop to all activities that result in destruction of lives. The Catholics pointed out that Adult Stem (AS) cell research is the way out, and an alternative to ESCR.

Apart from being ethically less controversial, AS cell research has its own limitations and advantages (Ruiz-Canela, 2002) - which this study does not deal with. There is a line of thinking that both ESCR and AS cell research are important and neither should be restricted (Ruiz-Canela, 2002). The scientific community is of the view that both ESCR and AS cell research should progress until the promise of each becomes clearer (Brock, 2006). Similarly, Miller (2008, p. 187) believes that we should proceed with ESCR while continuing research with other non-embryonic stem cells.

Meanwhile, Copland (2004) is concerned about the influence that the Catholic Church has on public policies, especially doctrinal position which seems to be at odds with the progress of Science itself. Copland wrote that Roman Catholic Church has been slow in accepting progress of Science due to its religious fervor to maintain its doctrinal position even when it has been empirically unsound, and that the Catholic Church is effectively lobbying in full force in many countries against experimentation on early embryos. Likewise, Oakley (2002) wrote that the Roman Catholic Church in Australia has lobbied politicians to prohibit ESCR on the grounds that it violates sanctity of human life. However, according to Oakley (2002), a report by the Australian parliamentary standing committee recommended that ESCR be allowed

under certain conditions. Oakley, therefore, argues that it is important to acknowledge the informed views of the larger community when it comes to formulating policies and to resist lobbying by a single religious group.

In Malaysia, however, the respondents from the Buddhist and Hindu faiths are not fettered by the standpoint of the Catholics, but they instead view it as a check and balance for issues concerning ESCR.

Meanwhile, Walters (2004) attempted to find tidy correlations between the various perspectives on ESCR, but found that it was 'fraught with difficulty'. Accordingly, the lack of authoritative voice resulted in a wide range of views. The difficulty lies in interpreting ancient sacred texts by religious leaders and scholars in light of today's medical discovery such as ESCR. Dissenting views can also be found within Catholic faith where liberal opinions disagree to the official church teaching. In addition, attempts to establish views for the 'Eastern' religions like Buddhism and Hinduism, according to Walters (2004, pp. 30-31), have led the representatives to relate the issue on ESCR to earlier teachings in an 'analogous' manner, which eventually has a 'decisive influence' on the representative's moral judgments.

At this juncture, it is worthwhile pointing out that for an Islamic community, ethical decisions and moral reasoning on biomedical innovations can be referred to the *fatwa* committee at state, national or international level. The concept of *ijtihad* offers avenue for reasoning and for continuing dialogue between scholars and researchers to develop a consensus (Aksoy et al., 2007).

The diverse views recorded in this study indicate a lack of consensus on matters concerning ESCR. The lack of consensus 'increases the complexity' of ESCR (Jafari et al., 2008, p. 82). In other words, lack of consensus makes it difficult to formulate public policies. Nevertheless, public policies should respect the diverse fundamental

beliefs in a pluralistic society and not to be 'held hostage to any single view of embryonic life' (Childress, 2004, p.105).

The voices of religions are influential in shaping a country's policy, and ESCR is no exception. In a pluralistic society, a clash of ethical frameworks emanates from religious groups. There is limited space for common grounds and a comprehensive social consensus is unlikely to reveal as efforts to develop public policies are challenged from different 'interlocutors' (Brouillet & Turner, 2005, pp. 60-61).

The neighbouring country, Singapore, has taken a lead among Asian countries to allow ESCR to be carried out on surplus embryos, and on research embryos when there is a strong scientific merit. This position was adopted after collecting the viewpoints of the religious authorities and various stakeholders on their moral acceptability on ESCR, which was then published as a report (Singapore BAC, 2002). The Singapore BAC submitted its recommendations on ESCR assuring that it is not dominated by a single view.

In Malaysia, thus far, the nation has adopted guidelines based on the national *fatwa* ruling that only allows the use of surplus embryos in stem cell research. It is hoped that the findings of this study offering the perspectives of the Buddhists, Hindus and Catholics will shed more light in matters concerning the permissibility of ESCR in Malaysia.

The good news is that ongoing debates about the permissibility of ESCR reflect the concerns expressed by various groups, including the different religious traditions. On the other hand, ethical dilemmas continue to plague scientific advancements such as ESCR. Thus, what is needed right now is open discussion on the matter without fear or prejudice.

On the whole, there is no intrinsic unanimity in the justifications offered by each religious group except for the Catholics. At present, there is no official institutional

response on ESCR within the Buddhist and Hindu communities. However, the Buddhist and Hindu leaders embrace the absence of a central authority and encourage individuals to seek personal understanding from the teachings.

Although there is no unanimity in the stand by the respondents, there seems to be a growing concern pertaining to the practice of ESCR in Malaysia, and has initiated discussions in public forums. Though there is no widespread consensus on ESCR among the religious leaders, there seems to be some points of agreement on certain aspects of ESCR. All respondents agree that embryonic life must generally be respected, but differ in their exegesis regarding the moral status of a 5-day old embryo when used in stem cell research. They also have stressed the need to regulate policies concerning ESCR in Malaysia.

CHAPTER 7: CONCLUSION

This final chapter draws together the key findings of this study to provide a comprehensive insight on the ethical perceptions of the Buddhist, Hindu and Catholic representatives with regards to ESCR in Malaysia.

7.1 Relating Findings to Objectives of the Study

The three objectives determined at the beginning of this study have been achieved. Firstly, the ethical considerations pertaining to ESCR in Malaysia were explored from the perspectives of the Buddhist, Hindu and Catholic representatives. The findings identified three themes, namely (a) sanctity of life, (b) 'do no harm' and (c) intention of the research, representing the ethical concerns of the religious leaders. Generally, the notion of sanctity of life was deliberated by Buddhist, Hindu and Catholic respondents. It is also regarded as an important ethical value in Islam. The second theme, 'do no harm' was also deliberated by Buddhist, Hindu and Catholic respondents respectively. The third theme, intention of the research, was, however, projected as a significant factor among the Buddhists and Hindus only. The last two themes, especially the notion of intention of the research, represent the emerging and rising concerns of religious community in today's moral debate on ESCR.

Next, the ethical viewpoints of the Buddhist, Hindu and Catholic representatives with regard to the use of both surplus and research embryos in ESCR were investigated. The findings indicate that generally all Buddhist leaders approve ESCR, except for one leader who disapproved the use of research embryos. The Hindu representatives approve ESCR but limited it to the use of surplus embryos. All Catholic respondents gave outright disapproval to ESCR.

Finally, the standpoints of the Buddhist, Hindu and Catholic representatives with regards to obtaining consensus in Malaysia were examined. On the whole, there is no widespread consensus among the religious leaders. The Buddhist and Hindu representatives taking into account the various value-systems in Malaysia, agreed that a consensus is difficult to be achieved, but they believe that consultation and prolonged discussion over time among the different faiths will bring them closer towards achieving a unifying stand. The Catholic respondents, whilst respecting the various value-systems, firmly stressed that a consensus for them would mean none other than a rejection of ESCR.

The varying ethical perceptions gathered in this study represent the fabric of a multi-religious society in Malaysia.

The ethical concerns of the Catholics are in accordance with the standpoint of the Vatican, the official teaching authority. The resources and declarations from Vatican concerning ESCR, include the 'Declaration on the Production and the Scientific and Therapeutic Use of Human Embryonic Stem Cells' by Pontifical Academy for Life (2000), 'Congregation for the Doctrine of Faith: *Instruction Dignitas Personae* on Certain Bioethical Questions' endorsed by [Pope] Benedict (2008), and address of the Holy Father at the 18th International Congress of the Transplantation Society by [Pope] John Paul II (2000). All these documents released by the Vatican, stress that the human embryo, from the moment of conception is a well-defined identity, and therefore manipulation and destruction of human embryos in research is unacceptable even if the goal is to find cures for diseases.

Meanwhile, the ethical concerns of the Buddhist respondents in this study differ from the paper by the renowned Buddhist scholar, Keown (2004). In the paper, Keown pointed out that Buddhist opposes research on human embryos that entails destruction

of human life. Meanwhile, Promta's (2004) views which give a fresh interpretation of Buddhist personal and social ethics are also reflected in this study.

The findings also concur with Walters (2004) and Foong (2011). Walters (2004) noted the pivotal role of centralised authority in Catholicism, which is also evident in the stance of the respondents in this study. The absence of a single authoritative voice in Buddhism and Hinduism has led to varying interpretation of religious texts giving rise to a wide range of viewpoints (Walters, 2004; Foong, 2011).

As there are not much writings on the Buddhist standpoint on ESCR, the findings of this study has provided new insights on the subject matter. Generally, the Buddhist respondents encourage ESCR if it is in accordance with the principle of *ahimsa*, and if the intention of the research generates good *karma*. This offers fresh insights in the ethics discussion, and needs to be explored further.

Similarly, there are limited resources on the position taken by Hindus on ESCR, other than Tyagananda (2002), who stated that destruction of life is bad *karma* unless it is for the greater good of humanity. Likewise, the Hindu respondents in this study cautiously supported the use of surplus embryos in ESCR, as long as it is in accordance with *ahimsa*, and if the intention of the research is in line with law of *karma*. Once again, this has offered new perspectives and new dimension on the issue, which needs to be explored further in other multi-religious settings.

As the Catholic respondents conceded in not having a different opinion from the Vatican, it is the responses of the Buddhist and Hindu representatives which offer a new perspective on the subject matter.

7.2 Incorporating Findings into Conceptual Framework

This study begins with a conceptual framework in Chapter 2. The findings of this study are now incorporated into the Conceptual Framework to give a comprehensive insight.

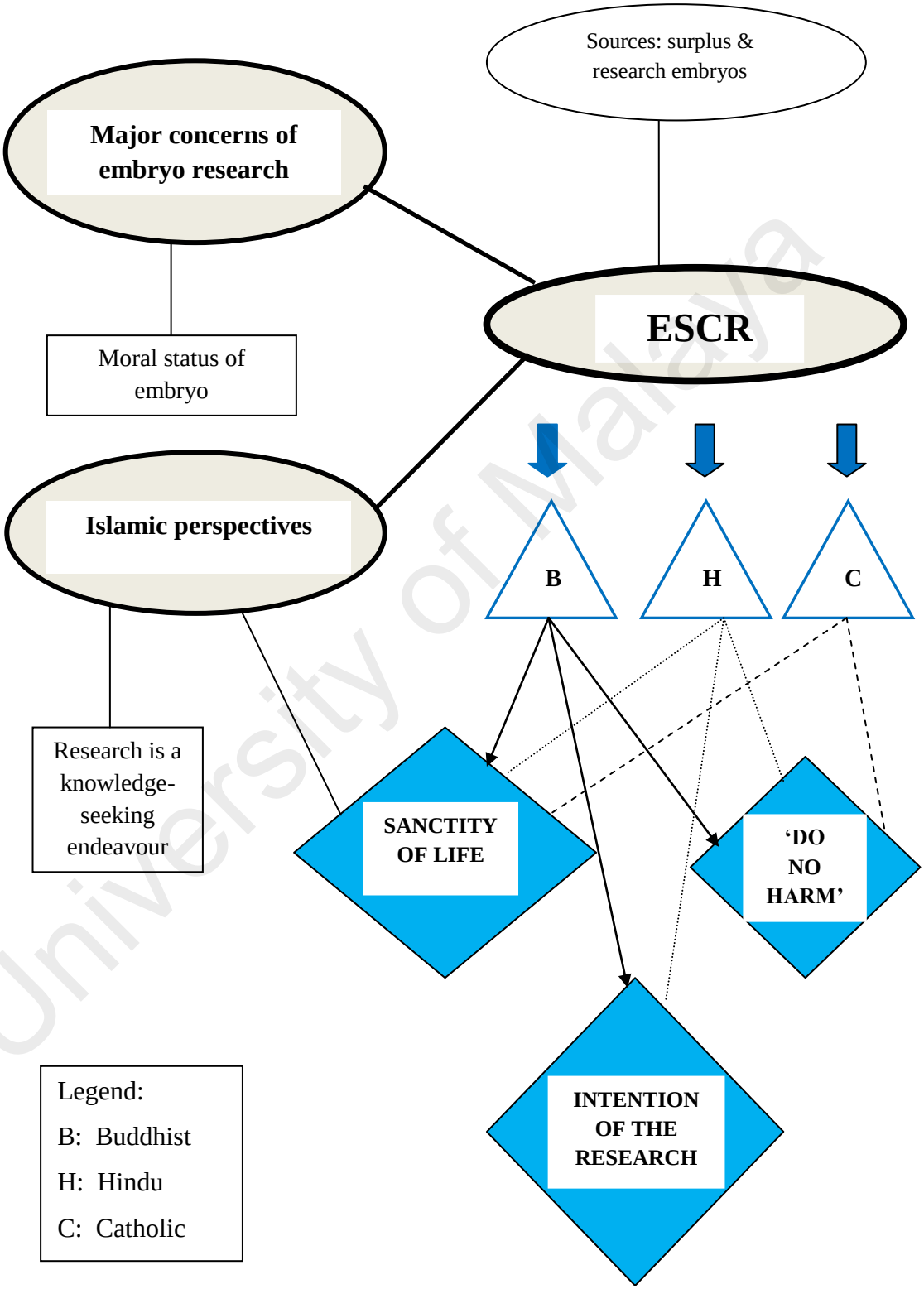

Figure 7.1: Ethics Framework for ESCR

Figure 7.1 shows that the findings of this study are incorporated into the existing conceptual framework proposed in Section 2.4 at the beginning of the study.

Figure 7.1 only presents the major ethical concerns pertaining to ethics of ESCR. Thus, the motivational factors and values related to every theme are not illustrated in this framework.

The left hand side of the framework illustrates the major concerns of embryo research based on existing literature, that is, moral status of embryo. Besides that, the Islamic perspectives on ethics of ESCR based on the two principles, which is 'research is a knowledge-seeking endeavour', and 'sanctity of life', are explored in this study. Both these principles served as guideline in steering the direction of research, and to examine whether the Buddhist, Hindu and Catholic leaders share similar concerns or whether they have other overriding concerns.

On the right hand side of the framework, the three shaded boxes represent the three themes identified from this study with the respective religious leaders, namely, 'sanctity of life', 'do no harm', and 'intention of the research'. The latter two themes emerged from the findings, and particularly, the last theme, intention of the research, is an emerging theme, offering new insights in the ethical discussion.

The three themes reflect the ethical concerns of the Buddhist, Hindu and Catholic leaders. From the connecting arrows, it can be concluded that the Buddhist and Hindu respondents deliberated on all three themes, whereas, the Catholic respondents only deliberated on the former two themes. Thus, the Buddhists and Hindus focus on the good intentions of the research, which sets them apart from the Catholic respondents.

This framework, on the whole, provides a comprehensive picture on the ethical concerns of ESCR in the context of Malaysia, a multi-religious country. It is recommended that this ethics framework is used as baseline in future ethical debates.

7.3 Relating Findings to Research Questions

The findings of this study are presented as responses to the research questions posed in Section 1.5

(a) What are the main values and moral principles that guide the decision-making process pertaining to ethics of ESCR in Malaysia?

The Buddhists and Hindus are guided by the principle of *ahimsa* and Law of *Karma*. When deliberating about the ethics of ESCR, the Buddhists and Hindus apply the principle of *ahimsa*, emphasising non-violence, and prohibit acts that inflict harm on living entity. Depending on the moral interpretation, the religious leaders either argue that ESCR does not violate the principle of *ahimsa*, or that it does, reflecting upon religious notion of ensoulment and early consciousness of embryo. Besides *ahimsa*, the Buddhists and Hindus also emphasised that if the intention of the research is in accordance with Law of *Karma* which benefit humankind, then it generates good karma and is considered noble. Thus, ESCR is encouraged.

On the other hand, the Catholics emphasised the principle of inviolability of embryonic life. They stressed the need to respect life at all stages, including early embryos. This is because the Catholics believe that the embryo is a living soul from the moment of conception which warrants the respect and protection accorded to a human being.

(b) What are the common similarities and differences within these religious perspectives (Buddhist, Hindu and Catholic)?

This study has demonstrated that the common element among these religious beliefs is that embryonic life needs to be respected. It is ultimately the moral discernment of the representatives based on various religious aspects that led them to either encourage ESCR with conditions, or disapprove ESCR. Besides that, the concept of donation (*Dana*) is regarded by the Buddhists and Hindus as an ethical guiding principle, when arguing for the use of surplus embryos in ESCR.

This study noted a few significant differences among these religions. Firstly, on the notion of ensoulment. Catholics believe that the moment the sperm and egg fuses, the soul is breathed in, creating a well-defined identity from day one of fertilisation, marking presence of life; the embryo becomes a living soul. On the contrary, in line with the sacred texts, the Hindus generally believe that ensoulment occurs around 90 days of fertilisation. Therefore, the Hindus believe that a 5-day old embryo is in its vegetative state, and has not developed a structured body for the soul to dwell. So, in a 5-day old embryo, the soul is not present to mark the phase of 'actual life'. It is for this reason that the embryo is allowed to be used in research. Meanwhile, the Buddhists do not believe in the concept of an eternal soul. They counter the concept of soul with doctrine of *Annata*, which emphasises the concept of non-self. Accordingly, the life energy equated as consciousness is not present in a 5-day old embryo, therefore eliminating moral qualms on ESCR.

The second difference lies in the fact that intention of the research is considered as a crucial point among Buddhists and Hindus, setting them apart from the Catholics. The Catholics disapprove ESCR regardless of its potential to bring cures for diseases. To the Buddhists and Hindus, the intention behind research is regarded as a higher

purpose, whereas the Catholics refuse to consider the potentials of the research and only emphasise the fact that research brings upon destruction to embryonic life.

The third difference observed is related to the moral interpretation exclusive to particular religious beliefs. The Buddhists generally do not see any moral difference between the use of surplus and research embryos in ESCR, giving permissibility to both. The Catholics also do not see any moral difference between both the embryo sources, but gave an outright disapproval to ESCR because according to them research on both are equally destructive. For the same argument, the Buddhists and Catholics arrived at opposing standpoint. Here, we can see that one's religious beliefs leads to one's decision-making.

Last but not least, the centralised authority in Catholicism led the respondents to give a consistent viewpoint, as compared to the absence of one in Buddhism and Hinduism leading to diverse viewpoints.

(c) What is the position taken by each religion? (Islam, Buddhist, Hindu, and Catholic faiths) on ESCR in Malaysia?

In Malaysia, the official position of Islam on matters regarding ESCR is based on the national *fatwa*. Accordingly, the use of surplus embryos in research is allowed with the consent of the couple, but creation of research embryos solely for research purposes is prohibited.

Other than the sole Buddhist respondent who disapproved the use of research embryos in ESCR, the rest of the respondents generally allow the use of both surplus and research embryos in ESCR, as they do not see any moral difference between both

the sources. In addition, the Buddhists encourage ESCR as they are motivated by the moral desire to alleviate suffering of the people.

The Hindus cautiously support ESCR, but limited it to the use of surplus embryos. They emphasised that donating surplus resources to the needy is in line with the religious concept of donation (*Dana*) and compassionate act (*Dhayai*). Thus, donating surplus embryos for research which benefits the society at large is viewed in the same vein.

The Catholics gave outright disapproval to ESCR regardless of the embryo sources, because to them the end result is the same, which is destruction of life.

(d) What is the response of the religious leaders in recognising the value systems of various religions in Malaysia with regards to obtaining a consensus on ESCR?

Generally, all the respondents expressed their respect to the various value-systems and teachings of different faiths in Malaysia. However, given the varying value systems, the respondents cautioned that a general consensus on ESCR involving all the religious groups is difficult to achieve at this point of time. The reason forwarded for the difficulty is the fear of overriding or having to compromise one's doctrinal values to achieve uniformity of views.

However, the respondents generally proposed that inter-faith discussion would lead to the emergence of common values and common grounds to formulate a guideline. Nevertheless, this is fraught with difficulty, as to the Catholic leaders, the only option would be to disallow ESCR. Perhaps, for the time being every religious group should come up with a general guideline, and with evolving knowledge and time, they may be able to get closer towards achieving a common guideline for all.

(e) **What are the possible recommendations that may be gathered from these religions pertaining to ESCR in Malaysia?**

Generally, the Buddhists and Hindus agree that ESCR should be pursued while we also look for other viable alternatives. They also recommended that ESCR should be continued for the progress of mankind as long as it is in accordance with the principle of ahimsa, law of *Karma* and *Dharma* (ethical codes). Respondents expressed hope that many more will support ESCR if the public and particularly the inter-faith groups are well-informed of the related issues through consultations and dialogues.

Meanwhile, the Catholic respondents cannot be dissuaded from objecting to ESCR, as they have recommended that we start exploring non-embryonic stem cells such as adult stem cells as alternatives. They stressed that they are not against stem cell research or scientific progress, but the nature of ESCR which conducts research on human embryos.

7.4 Wider Implications and Concluding Remarks

The National Biotechnology Policy (NBP) was launched in 2005 envisioning the biotechnology sector as one of the key economic drivers of the nation. Malaysia is now in the second phase of NBP. Malaysia is also one of the leading healthcare providers in Asia, concentrating on stem cell procedures. As such, stem cell research has become increasingly important to be pursued, and this would mean including ESCR as one form of research.

As compared to the other forms of stem cell research like adult stem (AS) cell research, or induced pluripotent stem (iPS) cells, it is ESCR which raises ethical controversies. A conflict of interest or ethical dilemma develops in religious deliberations when attempting to balance the sanctity of human life with the need to alleviate human suffering.

'Science without humanity' is a deadly sin according to Mahatma Gandhi. In a multi-religious country like Malaysia, constructive discussion between the realms of religion and Science among religious leaders of various faiths is crucial. Improving the health of the people through therapeutic research without compromising respect for life, needs to be addressed.

This study, being the first of its kind, has gathered the multi-faith insights on ethics of ESCR in Malaysia with regards to the use of surplus and research embryos. The findings of this study need to be communicated to the next level, which includes engagement with public and various stakeholders.

It is important that the religious leaders and representatives participate in open forums and inter-faith discussions to fully explore the issues pertaining to ESCR in the local context and propose recommendations to the government prior to the formulation of policies and framework.

It is also recommended that the findings of this study be discussed in inter-faith forums alongside with scientists and medical practitioners to encourage awareness of the principles that lie behind each faith which either prohibits or encourages ESCR. Inclusive inter-faith dialogues representing the non-Muslim population such as Malaysian Consultative Council of Buddhism, Christianity, Hinduism, Sikhism and Taoism (MCCBCHST), together with the Department of Islamic Development (JAKIM) would play a significant role in promoting healthy discussions that are unique, well-balanced and that takes into account the diversity of beliefs of all Malaysians.

A constructive discussion between the realms of Science and religion among leaders of various faiths in Malaysia is important to facilitate policies in research and development in biomedical sciences. While the goal of ESCR is to relieve human suffering, the sacredness of human life is also held highly by religious communities, and that needs to be addressed in future ethical discourses. This study has illustrated the multi-faith character of ethics in Malaysian context, which the global bioethics community may want to explore further.

7.5 Suggestions for Future Research

This study explores the ethical perception of Buddhist, Hindu and Catholic representatives in Malaysia, with regards to the use of surplus and research embryos in ESCR.

For a broader spectrum, further research could be undertaken in the following areas to facilitate formulation of policies in Malaysia:

1. A study on the legal issues associated to ESCR

2. The perspectives of other religious groups which are not covered in this study, including Sikhism, Taoism and various denominations of Christianity

3. A survey on the lay knowledge and attitude towards ESCR

4. The perspectives of scientists actively involved in ESCR

5. Other Islamic principles deemed important in ethics of ESCR

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List of Publications and Papers Presented

Journal Article:

1) Sivaraman, M.A.F., & Noor, S.N.M. (2015). Human Embryonic Stem Cell Research: Ethical Views of Buddhist, Hindu and Catholic Leaders in Malaysia. *Science and Engineering Ethics*. Published Online, 7 June 2015. Available at http://link.springer.com/article/10.1007/s11948-015-9666-9
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The final publication is available at link.springer.com
ISI-WoS cited publication, Scopus-cited, PubMed cited, and Google Scholar

2) Sivaraman, M.A.F., & Noor, S.N.M. (2014). Ethics of embryonic Stem Cell Research according to Buddhist, Hindu, Catholic and Islamic religions: perspective from Malaysia. Journal of Asian Biomedicine, 8(1): 43-52. DOI: 10.5372/1905-7415.0801.260
ISI-WoS-cited publication, Scopus-cited, Google Scholar and Chemical Abstracts

Proceedings:

1) Sivaraman, M.A.F., & Noor, S.N.M. (2012). Use of Surplus Embryos in Embryonic Stem Cell Research: Nothing Unethical is Happening. Proceedings of the 13th Asian Bioethics Conference concurrent with the 6th UNESCO Asia Pacific School of Ethics Roundtable, "Bioethics and Life, Science and Society" Session 7: Medical Ethics of Early Life and End of Life pp. 161-179, 27th- 30th August 2012. Kuala Lumpur: Asian Bioethics Association.

Abstracts:

1) Sivaraman, M.A.F., & Nor, S.N.M. (2014). Public Health Ethics for Plural Societies: The case of Human Embryonic Stem Cell Research. [Abstract, p.85] 46th Asia-Pacific Academic Consortium for Public Health: Evolution of Public Health in the Asia-Pacific Region. Track 15 Special Public Health Interest.

2) Sivaraman, M.A.F., & Nor, S.N.M. (2012). Use of Surplus Embryos in Embryonic Stem Cell Research: Nothing Unethical is Happening. [Abstract] Eubios J. Int & Asian Bioethics, 22(5) : 179

3) Nor S.N.M., & Sivaraman, M.A.F. (2013). Use of Surplus Embryos in Embryonic Stem Cell Research: The standpoints of the Buddhists, Hindus and Catholics in Malaysia. In: Xavier SJ, F.P., Macer, D., Selvanayagam, M. & Swaminathan, J.[Ed.] [Abstract, p.44] 14th Asian Bioethics Conference: Ethics in Emerging Technologies to Make Lives Better Together. Session 7 Clinical Ethics.