Protecting Life through the Artificial Womb Technology: Addressing Ethical and Legal Dilemmas in Kenya

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Abstract

Premature deliveries are one of the leading causes of child mortality and morbidity rates globally. Children born prematurely face many physical, social and psychological problems which often affect their overall development. This has led to the development of the Artificial Womb Technology (AWT). Its function is to facilitate the development of a human foetus in a womb-like environment. This advancement in neonatology potentially promotes every child's right to life through efficient medical care and reduced infant mortality rates as provided in Kenyan laws. The paper assesses whether the AWT promotes respect for the human dignity and hence protect lives of premature new-borns. Using Kant's framework of human dignity, and other legal and ethical scholarly writings, the author examines the appropriateness of the AWT in Kenya. It also addresses its potential ethical concerns on stretching the viability of premature new-borns, and the dilemma medical practitioners encounter when dealing with high-risk pregnancies in light of the sensitive abortion debate in Kenya. It proposes that AWT if applied, should be limited to the most life-threatening situations to avoid its misuse, ensure its use promotes human dignity, and calls for further research in the area.

***Keywords*: Artificial Womb Technology (AWT), Human Dignity, Premature Deliveries, Premature New-Born, Viability, High-Risk Pregnancies.**

1.0 Introduction

Pre-term delivery, otherwise known as pre-term birth, presents one of the most common risks associated with pregnancies worldwide (Stickler, 2016). A typical pregnancy lasts forty (40) weeks, however, a preterm delivery occurs when the expecting mother goes into labour before the 37th week of pregnancy. Preterm labour may be triggered by the mother's age, multiple pregnancies, previous preterm births, antepartum haemorrhage, pregnancy-induced hypertension, urinary tract infections, and prolonged prelabour rupture of membranes, among other causes (Chamberlain, 1991, p.44). Studies show that 15 million of the estimated 130 million babies born annually worldwide, are born prematurely (Wagura and Wasunna, 2018, p.1). Additionally, preterm births are most common in Sub-Saharan Africa and Asia, amounting to half of all births globally, with over 60% of preterm births and more than 80% of neonatal mortality (Wagura and Wasunna, 2018, p.1).

Complications arising from preterm births are responsible for approximately 37% of neonatal deaths world over, and are also the second leading cause of mortality in children below five years (Ballot, Chirwa & Cooper, 2010). Similarly, preterm babies are more likely to develop long-term complications and multiple disabilities (Chang, 2015, p.1). According to a study conducted at Kenyatta National Hospital, Kenya's and East Africa's largest hospital, the prevalence rate of preterm deliveries is 18.3% (Sarri, Gholitabar & Norman, 2015, p.1). Children are considered a blessing, source of wealth, and pride for many African families (Kwena, 2015). Premature deliveries, therefore, present a real threat to the African heritage.

Preterm babies are often admitted to the neonatal intensive care units (NICU), to help them develop to full term by supporting their cardiorespiratory function (Lucile Packard Children's Hospital, 2022, p.5). This technology, although hailed for its success in reducing preterm baby mortality rates over time, it cannot fully compensate for the protective haven of the mother's womb (Horbar & Lucy, 1995, p. 143). The Artificial Womb Technology (AWT) was developed as an improvement of the NICU to save more lives of the premature new-borns.

This paper discusses the nature of the AWT and its potential role in saving lives of preterm babies. It further situates this technology in the Kenyan health laws, and addresses the ethical and legal dilemmas it presents. These include whether it stretches the viability threshold for premature new-borns, and the dilemma doctors deal with when deciding to choose a mother's life over the foetus in high risk pregnancies, amidst the legal abortion debate in Kenya. It argues that the AWT could potentially support the lives of premature new-borns on the verge of viability. It also potentially helps medical practitioners because the technology enables them to save both lives. It asserts that the AWT, if applied, in ways that respect human dignity, can potentially save millions of the young lives who would otherwise succumb to complications associated with premature birth.

The paper consists of six parts. Part I is this brief introduction. The legal and theoretical framework of this work is discussed in Part II. It conceptualizes the human dignity of the person, emphasizing that the AWT should be applied in a manner that promotes the dignity of the premature new-borns. Part III delves into the development of the AWT, and its potential impact in saving the lives of new-borns. Part IV explores the ethical and legal debates surrounding the development and potential use of the AWT. Part V summarises the discussion and makes recommendations for the study.

2.0 Tracing AWT in Kenyan Legal Framework

AWT traces its legal foundation in the right to the health. Article 43(1) (a) of The CoK guarantees its citizens the right to the highest attainable standards of health, which includes the right to health care services. Article 53(1)(c) further stipulates special provisions for the protection of every child's right to health care. *The Children Act* of 2022 is the principal legislation which enshrines the rights of children. Section 6(1) particularly enshrines every child's right to life, survival, wellbeing, protection, and development. Section 16(1) of *The Children Act* reiterates Article 43 of the CoK and provides for every child's right to the highest standards of healthcare. Section 4(a) of the *Health Act* further provides for the enactment of laws and policies that protect, improve, and maintain the health of every person. Closely related to the development of the AWT is section 4(b) which provides for prioritising and investing in health research to promote technology and innovation in the delivery of health care services.

Kenya is also party to international treaties and conventions by virtue of Article 2(6) of the CoK. Article 24 of *The United Nations Convention on the Rights of the Child* (CRC) recognizes the right of the child to the enjoyment of the highest standards of health and mandates States to take appropriate measures to reduce infant and child mortality. Article 12 of the *International Covenant on Economic, Social and Cultural Rights* (ICESCR) provides similar provisions, including provisions for reducing still-birth rate, and for healthy development of the child. Similarly, Article 14 (a) and (b) of the *African Charter on the Rights and Welfare of the Child* (ACRWC) mandates State Parties to take measures to reduce infant mortality rates, and ensure that the necessary medical assistance is given to children. Goal 3 of the 2030 Agenda for Sustainable Development (SDGs) aims at ensuring healthy lives and promote wellbeing for people at all ages. Target 3.2 seeks to eliminate preventable deaths of new-borns and children under five years by 2030. In particular, the UN aims to reduce neonatal deaths to 12 per 1,000 live births. Target 3.4 further provides that by 2030, all States should reduce premature mortality rates caused by non-communicable diseases by one third through adopting preventive and treatment measures.

The AWT qualifies as a medical technological advancement which could be used to promote the health and wellbeing of premature new-borns. The General Comment No. 14 of 2020 on the right to health also provides that the right to health is also closely related to the realization of other human rights, including the right to life and, respect for human dignity. This regulatory framework, therefore, provides a basis for the development of the AWT as a means to reduce child mortality and morbidity rates, and in ensuring the highest standards of medical health for children.

3.0 Theoretical Framework: Human Dignity

This section delves into the various scholarly understandings of human dignity as it is widely explored and applied in various discussions in bioethics. According to *Oxford Dictionary*, *dignity* is generally defined as the state of being worthy of honour or respect. The historical meaning of dignity takes different conceptions (Dan-Cohen, 2011). It is applied in various medical, social, political, religious, and human rights discourses.

Kantian conception of dignity forms the focus of this study because if considered as a whole, his arguments form a common ground for people with diverse religious and ethical views (Shell, 2008, 1). Kant's theory is also hailed as one that

offers one of the most compelling accounts of the dignity of human beings throughout history (Caranti, 2018, p.600). Some people regard him as 'the father of the modern concept of dignity' (Bognetti, 2007, p. 75-79). He considers human beings as rational beings, able to make decisions autonomously, through universal laws (Peonidis, 2020, p.89). Kant considers the following themes as constitutive of human dignity: everyone, regardless of their social standing or rank, has an equal, intrinsic, and unconditional worth, which cannot be forfeited; the special place of man as a rational being should enable him to make autonomous decisions based on reason; and that everyone should act like both lawmakers and subjects whereby everyone is considered an end in themselves, rather than a mere means or price (Hill, 2015, 215 – 221). Similarly, legal institutions should interpret and enforce the inherent right to freedom that is entitled to everyone, and individuals ought to respect themselves and others as equal people under the moral law. Kant further distinguishes dignity and price, by arguing that dignity does not have a specific value, rather it is comparable to a value that is 'raised above all prices.' He associates human dignity with *autonomy* and considers it as the feature that raises human nature above all other prices (Waldron, 2012, 561). In this case, autonomy is not merely the ability to choose one's path in life, rather, the capacity to act under self-directed moral constraints (Caranti, p.600).

Kantanian's theory is not without criticism. Firstly, Kantian conception of human dignity is hinged on *autonomy*, therefore limiting it to human beings that can use their rational agency (Zylberman, 2016, p.205). It is, however, observed that deliberate actions of autonomous and rational beings may violate the human dignity of the unborn child, like in the case of deliberate abortions (Waldron, p.560). Followers of Kant have a ready response for this criticism, in that dignity is not necessarily grounded on the active use of rational agency, instead, it is merely having the capacity to use the rational agency (Zylberman, p. 205). This presupposes that all human beings, including children, are entitled to having their dignity respected, as they possess the capacity to use their rational agency. Rosen argues that in this way, Kant's conception and the Catholic church's views coincide because both view human beings as stewards, and not as owners of their intrinsic value (Rosen, 2012, p. 123).

The Catholic church considers that the dignity of the human person exists from the time of conception, hence not dependent on one's ability to use their rational agency (Zylberman, p.205). The Declaration on Procured Abortion of 1974 states that the adventure of human life begins at fertilisation, and its great capacities need time to find their place and to be capable of acting. Pope Francis (2020) argues that procuring an abortion in itself is utter disrespect for human dignity.

Secondly, although Kantanian's theory is hinged on the intrinsic worth of human beings, including pre-mature newborns, it did not consider the 'Blacks' as human beings deserving of dignity. This is clearly drawn from Kant's own racist statements about the capabilities of 'non-whites' (Allais, 2016, p.2 - 4). This study, however, considers the concept of human dignity as applying to all mankind, irrespective of race.

Thirdly, the primacy on 'autonomy' is also highly contested by the *African communalistic* view of human dignity (African Consortium for Law and Religion Studies, 2019). This is because dignity is considered to exist through the collective responsibility of individuals within families, communities, and nations, as opposed to focusing on individual claims against others as expressed in words such *utu* in East Africa.The communal aspect does not relegate an individual's needs, rather, it proposes that there is a close corelation between the individual and the community, and

both depend on the other to succeed (Ogbujah, 2007). It could, therefore, be argued that premature new-borns, need the support of the adults to take care of them, and provide medical technologies which promote their wellbeing, so that they can grow into useful members of the society.

The study of the AWT and neonates can be analysed in light of this debate. This paper argues that scientists, ethicists, and researchers can use Kantian's conception of human dignity in their studies on the use of AWT to prove that premature new-borns enjoy an equal status to adults and should therefore have their dignity respected. Further, scientific technologies are not beyond human dignity, and therefore human beings should not be used merely as instruments of these technologies (Andorno, 2009, p. 223). Grounding this study on human dignity would ensure that the use of AWT is limited to use which dignifies the new-borns.

4.0 Emergence of Artificial Womb Technology (AWT): The Future of Neonatology

4.1 Research on AWT

The Artificial Womb Technology AWT is a form of Artificial Intelligence (AI) which facilitates in ex-utero gestation, allowing preterm babies to continue developing while outside their mother's womb (ectogenesis) (Romanis 2019, p.393). The concept of the AWT came into existence in the 1950s after the development of the oxygenator technology (De Bie, Davey, Larson et al, 2020, p. 146). The first major development of the artificial wombs occurred in 1958, when some scientists introduced a thin tube into the umbilical cords of seven previable human foetuses in a warmed, perfusion environment, that was connected to an oxygenator, prolonging their lives for up to 12 hours. Three years later, the first experiments on the artificial womb began, with 35 foetal lambs being placed and surviving for up to 55 hours (Temming, 2019). Since then, other groups of scientists have experimented with this technology using various models, in order to improve oxygenation and lengthen the survival period in the AW (De Bie, Davey, Larson et al, p. 146). More recently, in 2017, a group of scientists from the Children's Hospital of Philadelphia (CHOP) discovered a mechanism to gestate sheep foetuses outside the ewe's womb, resulting in a lamb that is as normal as one born naturally. At a gestational comparable age of 23 – 24 weeks in humans, the foetuses were removed from their mother's womb by caesarean surgery and submerged in a biobag. During the four-week trial period, the foetal lambs under examination developed regularly.

This technology contains unique features, which have been designed for the wellbeing of the developing foetus. It has a biobag which replaces the placenta with an oxygenator connected to the lamb's umbilical cord, through which carbon dioxide flows out, and nutrients are delivered to the developing foetus. The bag serves as an amniotic sac, filled with warm, sterile, lab-made fluid that the lamb breathes and swallows, just like a human foetus would, and allows the foetus's beating heart to pump blood. Rather than placing the foetuses in synthetic amniotic fluid in a fish tank set up as scientists did in the 1960s, the newest group placed them in fluid-filled bags that were sealed to decrease the chance of infection (Temming, 2019). Malewar (2019) found that the fluid-filled biobag supports the cardiorespiratory physiology of the foetus, avoiding the adverse effects of air-based ventilation on the underdeveloped lungs. This biobag is then placed in a dark environment, akin to the human womb, but it is transparent, allowing real-time viewing of the foetus. Temming (2019) writes that while foetal lambs lived for an average of 40 hours in the 1960s, they grew and matured for four weeks

in the AW in the recent study, totalling 672 hours. The technology is still at the research stage, and uses animal foetuses for the experiments. In a few years, scientists hope to make this technology available to humans (Patridge, Davey & Hornick et al, 2017).

4.2 Potential Impact of the AWT

The Biobag's significant contribution, according to the researchers, is that it permits the foetus's gestation to continue, treating the baby as a foetus yet to be born, as opposed to an incubator, which merely assists a preterm baby in a few functions while not helping the gestation process (Horn, 2022, p.52). The goal of the AW is to support extremely premature babies get through the critical period between 24 and 28 weeks (Malewar, 2019). It is also considered more natural because it is similar to the conditions of a natural womb. This technology aims to revolutionalise the NICU, because the conventional technologies used in the healthcare of preterm neonates is inherently limited, and still results in high morbidity and mortality rates (Romanis, 2018, p.1). It could potentially alleviate the suffering of families which have to deal with long hospital stays or loss of their new-borns (Ngila, 2022). Further, considering the great improvements brought about by the NICU technology in reducing cerebral palsy, preventing brain damage, monitoring the heart rate, and treating cardiac issues for premature babies, the AWT is designed to improve health outcomes for more children (Hack, Klein & Taylor, p. 179). Moreover, the AWT could potentially empower women to choose an alternative to a risky pregnancy without incurring the risk of a miscarriage or other premature birth complications (Romanis, p.4).

However, this technology is not without its criticisms. First, because of the lower death rates, more children now have one or more health problems than before the invention of the NICU technology (Hack, Klein & Taylor, 1995, p.179). For instance, high survival rates of neonates with low birth weight are linked to high prevalence of cerebral palsy. This problem would also be presented in the use of AWT. The rising number of children with chronic illnesses means increasing workload for families, schools, and social services (Costeloe, Hennessy, Haider, & Stacey, 2012, p.7). Also, the abounding misconceptions and stigma surrounding birth defects in Africa would only worsen the situation. Many people consider birth defects as punishment from God for their sinfulness. Communities also reject and victimize the parents and their children, if they are born with certain conditions (Henderson, 2022). Second, according to the British Medical Association (2020), there are ethical concerns that putting premature infants to AWT is cruel and agonising due to the pain they may experience. Studies on foetal awareness, however, reveal that a foetus cannot feel pain before 24 weeks of gestation because the neural connections from the periphery to the cortex are not yet formed. Foetuses can perceive pain after 24 weeks, but do not experience a 'state of true wakefulness' while in the womb. Third, the usage of this technology may increase the gap between the poor and the rich in society. It is feared that the wealthier parents may choose to pay for the AW, while the less fortunate parents will rely on their wombs to gestate their babies. Fourth, is the potential for discrimination and criticism of children born via AWT. The government may be required to put stronger safeguards in place to protect their privacy regarding their origin (Ngila, 2022).

5.0 Ethical and Legal Debates Regarding the Use of AWT

AWT raises pertinent ethical and legal debates regarding its suitability. This section discusses the concept of foetal viability in an attempt to

assess how far this technology can go to save the lives of neonates on the verge of viability. The section also discusses the dilemma of health professionals in terminating high risk pregnancies in light of Kenyan abortion laws, and discusses the potential contribution of the AWT in saving high risk pregnancies. It concludes by analysing whether or not the AWT promotes human dignity.

5.1 AWT and the foetal viability threshold

The issue of foetal viability has been the subject of heated arguments in legal, medical, and ethical circles. In public policy, it is used as a standard for regulating abortion and foetal research (Fost, Chudwin & Wikler, 1980, p.10). In neonatology, it serves as the foundation for decisions for the resuscitation of premature new-borns. Similarly, it is used to determine how much financial investment and effort should be put into the care of a sick new-born (Havlisch, 1987, p.954). This section explores the different conceptions of foetal viability as understood from a medical, ethical, and legal perspective. It then covers the AWT's position in the controversy over foetal viability.

Foetal threshold for viability is described as the gestational age of the foetus between 22 and 25 weeks (Synnes, Buchanan, Ruth & Albersheim, 2008, p.498). This is the age at which a foetus is considered capable of living outside the womb of its mother. The gestational age of the foetus is critical in determining the viability threshold because the longer the foetus can remain in the womb, the more fully developed the child is likely to be, and the shorter the period, the lesser the baby's chances of survival (Taylor, 2021). This threshold of 22 – 25 weeks marks a great improvement in the medical field, as less than 50 years ago, neonates born at 28 weeks of pregnancy were regarded to have little chances of survival (Cha & Roubein, 2021). There is no universal consensus, however, on the minimum age of survival (Fost, Chudwin & Wikler, p.10). The borderline of viability was recently extended to 21 weeks following the successful birth and survival of a baby named Curtis Means at 21 weeks and 1 day gestation and weighing 14.8 ounces. Other medical studies show that viability implies that survival is possible at a given gestation, regardless of disability (Di Stefano, Wood, 7 Mactier et al, 2021). This suggests that a child's survival outside the womb is unrelated to their incapacitations.

English Law regards the capacity to breathe as a necessary condition of viability. Brooke J stated in *Rance and Another v Mid-Downs Health Authority and Another* [1991] 1QB 587, that a foetus is only viable if it is capable of breathing on its own without depending on the mother. In this case, viability refers to the ability to be born alive and survive for an extended period of time by breathing independently, rather than long-term survival (Romanis, p.7). The US Supreme Court defined viable in *Roe v Wade* (1973), as the point at which the foetus is capable of living outside the mother's womb, although with artificial aid like ventilators. Ethical scholars describe viability as the *capacity of an organism to survive for a designated period of time in a defined environment* (Fost, Chudwin, Wikler, p.12). From these diverse conceptions of viability, it is clear that the use of technology, including artificial intelligence, to support life is uncontested.

The contention lies in the risk of stretching this viability threshold. Gillam and others believe that for babies who are hanging on by a thread, their lives may be filled with innumerable hospitalisations, excruciating treatments, and times that veer dangerously close to death, if they do not actually die. Therefore, being alive can neither be considered a benefit, nor in the best interests of the child (Gillam, Wilkinson, Xafis &

Isaacs, 2017, p.108). Others fear that AWT may be applied inappropriately, to stretch the limits of viability as the premature babies in an AW would not be resuscitated (Yuko, 2017). Following this argument, AWT would be considered a futile attempt.

On the other hand, Brunkhorst, Weiner and Lantos (2014) argue that an infant at the borderline of viability should be allowed a 'trial at life.' They maintain that it is not in the child's best interests to allow them to die without giving them a good chance at life. While discussing the moral status of human foetuses, Steinbock (2011) likens them to trees, which are alive, and to flags, with a symbolic significance. This study supports the latter assertions, by giving the foetus a chance at life, their inherent dignity as human beings is respected. The AWT potentially gives premature new-borns on the verge of viability a chance at life.

5.2 AWT and High-Risk Pregnancies

AWT stretches beyond taking care of preterm new-borns. It is also likely to help women with high-risk pregnancies. The term 'high risk' refers to a pregnancy that poses a threat to either the mother's or foetus's health, or both, due to physiological, psychological, or environmental factors (Hemp & Pond, 1986, p.11). In some cases, where a woman has a pregnancy that threatens her life or health, she is advised to procure an abortion. It is, however, not an easy decision to make, for both the mother and the doctors. For instance, doctors who uphold the faith may find such a decision inimical to their beliefs. Similarly, there are many legal debates regarding Kenyan abortion laws as they are generally considered to be uncertain. This section discusses the double effect principle which acts as a guide for medical practitioners, and sets straight the confusion doctors encounter in light of the unclear abortion laws.

a. The Double Effect Principle

This principle is a Roman Catholic moral doctrine which was first espoused by St Thomas Aquinas in the thirteenth century as a justification of self defense (Seeds, 2012, p.83). It recognizes that a justifiable action may result in both good and bad results in certain circumstances (Seeds, p.84). The principle is used when distinguishing between direct, intended abortion, and legitimate medical procedures meant to save a mother's life. It states that doing an action that has both a good and bad result is justifiable if: first, the action is morally good; second, the intention is purely to produce the good effect; third, the good effect is not achieved through the bad effect; and fourth, there is a sufficient good result to permit the bad effect (Gillon, 1986, p.193).

Generally, doctors should do their best to save the lives of both the mother and the unborn child (Catholic News Agency, 2010). The United States Conference of Catholic Bishops 2009 (USCCB) gave directives to catholic health care providers which indirectly speaks to the double effect principle. Directive 47 provides that operations and treatments whose direct purpose is to cure a proportionately serious condition of a pregnant woman are permitted when they cannot be safely postponed until the child is viable, although they result in the death of the unborn child.

This doctrine can be applied to evaluate the efficacy of the AWT in the face of the doctors' ethical dilemma. A doctor who questions the morality of AWT to save the mother's life in a way that endangers the life of the unborn child may be guided by this principle. AWT clears the moral dilemma if: it can be proven that using AWT is morally good; its intention is to save the lives of both the premature new-borns and the mother; the negative result is that the child is susceptible to complications resulting from

premature delivery; and lastly, that saving both lives was a proportionately good reason to permit the premature delivery.

b. Kenyan Abortion Laws

The CoK jealously protects life. Article 26(1) enshrines the right to life and Article 26(2) stipulates that the life of a person begins at conception. Article 26(4) categorically prohibits abortion, except where a trained health professional determines that emergency treatment is required, or when the mother's life or life is endangered, or when other written law permits. While the CoK permits health professionals to procure abortions in order to preserve a woman's life or health, it is still unclear how widely the abortion law is understood and practised in the medical field. This is because Section 160 of the Kenyan Penal Code criminalizes abortion under all circumstances, referring to it as 'unlawful'. The Penal Code has not been amended to incorporate the Constitutional provision. The Kenya Human Rights Commission argues that the continued retention of the abortion provisions of the Penal Code results in uncertainty on the law and undermines the 'promise and efficacy of the Constitution' (Ngwena, 2014). This legal ambiguity causes medical practitioners to be hesitant to perform abortions out of fear of facing legal consequences, even though the penalties do not apply to legal abortions.

The confusion in the laws, has been addressed by the Kenyan laws and courts. According to s*ection 7(1) of the Sixth Schedule of the CoK, all laws that existed before the enactment of the CoK are to be interpreted with the alterations, adaptations, qualifications and exceptions needed to align it with the Constitution. The Penal Code, having been enacted in 1930, should be interpreted with the adaptations, and exceptions that allow it to conform with the CoK of 2010. Thus, the sweeping prohibition of abortion in the Penal Code cannot apply.*

The High Court of Kenya in *Federation of Women Lawyers (FIDA – Kenya) & 3 Others v Attorney General & 2 Others* [2019] while interpreting Article 26 (4) of the CoK, stated that as a general rule, abortion is prohibited, and is only permitted in instances where a pregnancy, in the opinion of a trained health professional, endangers the life, physical, psychological, or mental health of the mother. Also, it explained that the trained health professional includes a clinical officer, nurse or midwife who is educated and trained to manage pregnancy-related concerns.

In the case of PAK & Another v Attorney General & 3 Others [2022] KEHC 262, Nyakundi J held that a trained and licensed health professional who exercises their expertise with due care, and good faith inferred from the diagnosis they make after examining a patient cannot be guilty of procuring an abortion in the provisions of the Penal Code. It was further held that the abortion provisions in the Penal Code are not inconsistent with Article 26 of the CoK. Rather, there is a gap on information concerning the termination of pregnancies, which requires Parliament to enact abortion laws that provides for the exception in line with Article 26(4) of the CoK.

*It is clear that medical professionals can operate within the limits of Article 26 (4) of the CoK with utmost diligence. The previous debate notwithstanding, the study proposes that i*f the AWT is successfully launched, health officers will not be required to choose between the mother's and child's life because it offers a chance to save both.

5.3 AWT and Human Dignity

One major concern of the use of AWT is whether it respects human dignity. Article 28 of the CoK

provides that every person has inherent dignity and the right to have that dignity respected and protected. Article 19 (2) further provides that the reason behind recognizing and protecting human rights and freedoms is to preserve the dignity of individuals and communities, promote social justice and to realize the potential of all human beings. Further, Article 5 of the African Charter on Human and People's Rights recognizes the inherent nature of human dignity in all persons and prohibits all forms of exploitation and degradation in the form of torture, cruel, inhuman or degrading punishment and treatment. Human dignity is, therefore, the basis of all human rights, including the right to highest standards of health care for premature new-borns. Medical technologies ought to be in line with this right for them to be lawful, and acceptable when applied to provide health services.

The Congregation on the doctrine of the faith (1987) contends that biomedical techniques work for the good of human life when they help a person suffering from infirmity and respect their dignity as God's creation. Evidently, the mother's womb provides the best conditions for the development of a foetus in a way that promotes their dignity and all efforts should be put towards ensuring that a foetus gestates in the mother's womb. However, complications call for drastic measures like in the use of AWT in this case. Korir J in *R v Kenya National Examinations Council & Another Ex-Parte Audrey Mbugua Ithibu* [2014] eKLR held that human dignity can be violated through humiliation, degradation or dehumanization of the human person. The AWT would promote the respect for human dignity if it does not humiliate, degrade or dehumanize the new-born put into it.

Using Kantanian's conception of dignity, the paper proposes that the AWT could potentially promote the dignity of the premature new-borns for the following reasons: first, by considering every person's unconditional worth that cannot be forfeited, every premature child's life is considered to have an intrinsic worth, that cannot be taken away. The fact of being placed in a biobag does not tamper with the child's worth. Second, every person should be considered to be an end in themselves, instead of a means to an end. A premature new-born put in a biobag should not be used for experimental purposes, rather they should be placed for their own wellbeing and full-term development. This is, however, contentious considering the first premature human new-born to be placed in the biobag will indirectly be used to test the efficacy of the technology. There would be need for ethics approval for such experiments to take place in the first place. Third, although the premature new-born is unable to make autonomous, rational decisions, they have the capacity to do so. The use of AWT should ensure that they develop in conditions that allow them to have their rational capacity intact at the time of being discharged. Lastly, deliberate actions of autonomous and rational beings can lead to violations of human dignity of the unborn child, like in the case of procuring an abortion to save the mother's life or health (Waldron, p.560). AWT on the other hand, promotes respect for the life and dignity of the unborn child, by allowing the child to survive and develop separately, while still saving the mother's life.

6.0 Conclusion and Recommendation

In conclusion, premature deliveries remain a big problem for many expectant mothers. As such, AWT as discussed above seems to hold a great potential for reducing neonatal mobility by supporting the development of new-borns outside the womb. Also, while acknowledging the sensitive abortion concerns in Kenya, the invention potentially saves medical practitioners from making the tough decision of saving the mother's life over the foetus's in the case of high-risk pregnancies. However, for AWT to work for

Kenyan people, the following factors ought to be considered:

a) Placing emphasis on preventive measures against premature deliveries would reduce the need for the AWT. The key solution to dealing with preterm deliveries is to prevent low birth weight children to begin with (Paneth, 1995, p.31). This is because no technological advancement could ever replace the haven of a mother's womb for a developing foetus. Some controllable triggers like smoking, alcohol consumption, and lack of a strong social support system for expectant mothers, should be looked into (Soneji & Beltran0Sanchez, 2019, p.6). The public health sector should also manage the social-economic factors which trigger low-birth weight children such as low literacy levels, poor nutrition, poverty, inaccessibility to healthcare services while also expanding existing support programs (Mugambi, 2015). The government has taken a keen interest in maternal health care services in the country through resource allocation and decentralisation of these resources.

b) The need to develop a clear legal and policy framework for the application of AWT once it is successfully launched on human beings. This framework should ensure respect for the human dignity of the prematurely born children. Further, AWT should be limited to the most life-threatening situations so as to prevent its misuse.

c) The government should be prepared to support this technology, and make it accessible to as many Kenyans as possible in order to realise Kenya's the universal health coverage agenda (Wangia & Kandie, 2019).

d) There is need to develop laws and policies to give effect to Article 26 (4) of the Constitution of Kenya in order to clear the dilemma caused by the existing unclear abortion laws. These laws should be guided by the double effect principle to ensure that medical practitioners act ethically.

e) There is need for further research on the AWT as a whole. It is important for potential users of this technology, to understand its use, benefits, and the associated risks. The information would be particularly helpful to the expectant mothers as they consider the available options of dealing with a high-risk pregnancy. It would also help neonatologists as it may inform their treatment and management options for high-risk pregnancies. The research could also be beneficial to naïve women, who may consider the AWT as an option and suitable solution to avoid the long gestation period, the uncomfortable symptoms such as morning sickness as well as the painful child-bearing process (Ngila, 2022). Research could enlighten them to make informed decisions.

f) Lastly, considering the communitarian African context in which the AWT is to be applied, it should not only take into account the interests of the premature new-born, but also of the mother, the family, and the larger Kenyan society before it is deployed for use. This is because human dignity is considered to exist in the context of human relationships, rather than in isolation.

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