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Haematological Perspective of Some Mosaic Laws

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Summary
Religion plays a vital role in shaping members of society. The Mosaic Laws are laws that God gave the Israelites through Moses, according to the Old Testament. Some of these Mosaic laws were an act of worship while some also had health aspects affiliated to 'blood'. These laws draw humanity closer to God when obeyed. These laws and the haematological relevance include: Law against consumption of blood which when not obeyed results in exposure to microorganisms contained in the blood consumed; Law against consumption of dead animals- this was necessary based on the diseases associated with the consumption of dead animals such as Tularemia, Rabies, and Leptospirosis; Laws on separation of those with Leprosy (a highly contagious disease), and as such separation of these individuals prevents its spread; Laws against consumption of fish without scales and fins, which was necessary to prevent ingestion of toxins, trace and heavy metals; Law on Male Circumcision on Day 8, which is necessary based on the fact that synthesis of clotting factors have reached their peak on day 8 after birth; Laws against having sexual intercourse with a woman during her menstrual flow, which prevents the transmission of STDs and reduces the risk for the development of endometriosis; Laws on postpartum confinement which enables the mother to rest in order to rejuvenate blood cells lost during childbirth; Laws against alcohol consumption geared towards preventing haematological and haemostatic derangement such as liver damage, bleeding abnormalities, and red cell membrane destruction which results in the inability of the red cells to effectively deform and transverse through the blood vessels to transport oxygen and nutrients. Adherence to these laws today is still beneficial haematologically, and in the prevention of diseases that pose serious health challenges and causes economic loss during treatment. Therefore, these laws were not just burdens placed on humans but a means of reducing the spread of diseases.

Keywords: *Haematology, Mosaic Laws, Holy Bible*

1.0 Introduction

Religion plays a vital role in shaping members of a society. A relationship exists between the beliefs of the people and their health. The Holy Bible especially the Old Testament contains rules and regulations that govern Christianity and help build good morals (Aikaterini *et al.,* 2018). It is possible to obtain from them important information on daily healthy living, these rules and commands have a relationship with medicine and there are haematological based linkages to them that are geared towards living a healthy life.

The Old Testament books of Exodus, Leviticus and Deuteronomy written by Moses, where most of these biblical injunctions, rules, commands are found represents a common reference point for both Christianity and Judaism. These rules, commands, and injunctions were given by God to the Israelites through Moses, and they were the agreement between God and the people of Israel, after God first called Moses to Mount Sinai from where he received the divine commandments,

notably the ten commandments (Aikaterini *et al.,* 2018). These ten commandments constitute the core of the law of ancient Israel, known as the Mosaic Laws (Stravros,1999).

The Mosaic Laws are laws which God gave the Israelites through Moses, according to the Old Testament. These Laws begin with the Ten commandments and includes the many rules of religious observance given in the first five books of the Hebrew Bible, called the Pentateuch which includes Genesis, Exodus, Leviticus, Numbers and Deuteronomy (Agbikimi, 2014). Soon after the exodus from Egypt, God revealed the Ten Commandments, the basic rules and principles that have guided Jewish life into contemporary time (Agbikimi, 2014). There were a lot of rules and regulations that followed these laws of Moses, which cut across every aspect of life. They include how to worship God, what to eat and refrain from eating, how and when to rest, how to maintain the welfare of the community, and a host of other matter (Agbikimi, 2014), these were geared towards healthy living considering the number of persons that were together within a confined territory to prevent the spread of diseases. The hygienic rules, set by Moses, focus on laws regarding purity, cleanliness, and food (Kurt, 2005). These Jewish laws have also been found to be highly relevant to the practice of medicine (Horowitz, 2001).

To examine the haematogical perspective of some of these Mosaic laws, there must be an understanding of what is meant by the term Haematology. Haematology can be defined as the study of blood and the bone marrow, the diagnosis of diseases affecting the blood and the bone marrow, their treatment and management (Royal College of Pathologists, 2022).

While some of the Mosaic laws were an act of worship to God, some of these laws also had health aspect which related to 'blood'. More importantly cleanliness is next to godliness, and these laws draw humanity closer to God when obeyed. Obedience or disobedience to these laws had an impact on the haematological parameters of that individual. Disobedience to these laws could cause a deviation from the 'normal' with the emergence and spread of diseases. The aim of this scientific review is to state the various haematological views associated with some of the Mosaic laws. Some of these Mosaic laws under consideration are: Law against consumption of blood and fat, law against consumption of dead animals, separation of individuals with leprosy, laws against eating swine and fishes without scales and fins, male circumcision on day 8, law against having sexual intercourse with a lady on her menstrual flow, postpartum purification, and law against consumption of strong drink (alcohol).

1.1 Introduction to the Mosaic Laws

The Mosaic Law, which is also known as the Law of Moses, refers to laws which were handwritten by God and given to the Israelites through Moses (Sands, 2022). It includes many rules of religious practices given in the five books of Moses which are Genesis, Exodus, Leviticus, Numbers and Deuteronomy found in the Old Testament of the Holy Bible. In Judaism, these books are called the Torah.

1.2 Contents of the Mosaic Laws

The Mosaic law was given specially to the nation of Israel and these laws have been in practice over decades since it was received at the mountain of Sinai (Uhlmeyer, 2022). The Mosaic laws for the purpose of this paper can be assessed in the context of the 613 commandments of the Torah (Friedberg, 2013; Cohen, 2020). As a general overview, the laws can be stratified into instructions to be carried out (248 commands) versus actions to stay away from (365 commands), instructions based on public versus specific instructions, and compulsory versus optional instructions (Cohen, 2020). Commandment is translated in Hebrew as *mitzvo*t (the plural of command, mitzvah) which is used to describe these 613 commandments of the Torah (Jewish Virtual Library, 2022).

Halacha is also another Hebrew word used in describing the general system of the Jewish law (Regenstein *et al*., 2003). It is a term that simply means “the way” and appraises every aspect of the Jewish life (Shafran & Wolowelsky, 2013). This includes both the instructions of the Torah which are the five books of Moses found in the Old Testament (Genesis, Exodus, Leviticus, Numbers and Deuteronomy) and the Talmud – a

written account of the verbal law given to Moses (Regenstein *et al.*, 2003). The interpretation and application of these Mosaic laws are better explained by the Rabbis, whose words and decisions guide the Jewish people (Regenstein *et al*., 2003).

1.3 Purpose of the Mosaic Laws

What then can be said to be the purpose of these laws? As touching this discussion of the Old Testament law and its relation to haematological parameters, the main purpose of these laws must be clearly acknowledged. Some interpretive traditions and Scientific studies have sought to validate the Mosaic law by presenting the Jewish community and Moses as microbiologists with public health knowledge beyond their time (Hart, 2007). This made the Torah to be understood as a sanitary code, filled with higher practices of measures designed to protect and improve the family as a social institution (Uhlmeyer, 2022). Each of the commands which had certain health benefits were principally directed to the worship of God in cleanliness and holiness (Crotean & Yates, 2019).

Several illustrations reveal the illogical nature of interpreting the law as a sanitary code (Uhlmeyer, 2022). As written by Crotean and Yates (2019), the reason for which the Old Testament laws were given were more severe and of great importance than merely hygiene. These laws given by God Himself revealed the Holy character of the eternal God to the people of Israel (King James Bible, 2008, Lev.19:2; 20:7-8). For example, Jewish law forbade the consumption of camels, yet they were regarded as meals in the Arabic tradition and do not pose any risk to the health of an individual (Sprinkle, 2000).

In addition, health concerns likely related to the consumption of pork can be prevented by proper boiling, frying, and drying of the pork (Uhlmeyer, 2022). When the prohibition on animal fat consumption is mentioned, the Torah clearly explains the rationale: "All fat is the Lord's" (English Standard Version Bible, 2001, Lev. 3:16-17). A clear understanding of this text shows that the intent was worship and not hygiene (Crotean & Yates, 2019), this understanding however, in recent time and base on scientific and medical evidence is not true because consumption of excess fat itself comes with several dangerous health implications.

Nevertheless, the fact that individual's health may not be the main reason why the law was given, this does not repudiate the health benefits related to some of these Mosaic laws because "cleanliness is next to Godliness". Observance of these laws, therefore, leads to the prevention of certain diseases as well as a clean and Godly lifestyle.

2.0 The Link between the Mosaic Laws and Haematology

Haematology can be defined as the study of blood and the bone marrow, the diagnosis of diseases affecting the blood and the bone marrow, their treatment and management (Royal College of Pathologists, 2022).

While some of these Mosaic laws were an act of worship to God, some of these laws also had health aspect related to 'blood'. More importantly, "cleanliness is next to Godliness", and these laws draw humanity closer to God when obeyed. Obedience or disobedience to these laws had an impact on the haematological parameters of that individual. Non-compliance with these laws could cause a deviation from the 'normal' with the emergence and spread of diseases.

Blood is a tissue in fluid state that houses similarly specialized cells that serve distinct functions (Olaiya *et al*., 2010). Following this, individuals who disobeyed these laws had health conditions that affected the blood and could be life threatening. When the blood is affected, the functions of the components of blood become impaired bringing about disorders such as anaemia, blood clotting disorders, blood cancers (leukaemia), haemophilia, etc.

Some of these Mosaic laws gave the people of Israel an opportunity to demonstrate their love and obedience to God and in turn, protect the health of the Jewish people. Blood had a great importance in the life of an Israelite and was seen as consecrated and sanctified (Advocates for Jehovah's Witness, 2017). For the life of the flesh is in the blood (King James Bible, 2008, Lev. 17:11). From this text, it shows that blood

represents life. Every cell of the body receives nutrients from the blood for its survival.

Knowledge of the blood and circulatory system gives an indebt understanding of its spiritual, biological, clinical, and specifically haematological applications (Gillen & Conrad, 2019). The blood reveals more about the Majesty of our God and Master craftsman, irreducible complexity, and the health or disease state of the human body (Gillen & Conrad, 2019). Blood is a connecting fluid to all the systems of the body containing erythrocytes, leukocytes, and platelets called the formed elements of the blood, upon which all cells of the body are dependent.

Blood is a river of life that flows within us (Gillen & Conrad, 2019). It maintains the homeostasis of the body and non-compliance to these laws affect the normal physiology of the body. The blood is the most examined tissue compared to other tissues of the body. The blood when examined gives details on the state of health or cause of a disease in an individual which generally is referred to as the revealing power of the blood (Gillen & Conrad, 2019), where the complete blood count is interpreted and how abnormal counts reveal an infectious or parasitic disease.

2.1 The Law against Consumption of Blood and Fat; Diseases Associated with the Consumption of Blood and Fat and the Haematology Perspective

Dietary laws have made a great impact on the health and welfare of society over the past decades, it is undeniable that the history of these laws is much older (Hutt & Merril, 1991). Unlike most laws related to food, which are passed through governmental agencies or other lawmaking bodies, Jewish dietary laws are believed to have been given by the Almighty God through Moses at Mount Sinai to His chosen people; Israelites and transcribed in the Old Testament (Grunfeld, 1972). Regardless of religion, spirituality in general has shown in different ways its positive impact on health (Tan, 2013).

In the Old Testament, the Biblical command "For it is the life of all flesh; the blood of it is for the life thereof: therefore, I said unto the children of Israel, Ye shall eat the blood of no manner of flesh; for the life of all flesh is the blood thereof: whosoever eateth it shall be cut off" (King James Bible, 2008, Lev. 17:14); this command condemns the consumption of blood either as food or a therapeutic agent as seen in the case of the practice of the members of the Jehovah's Witness, who do not take or allow blood transfusion.

Consumption of blood poses serious health risks to the individual. Both animal and human blood have been found to be prone to bacterial growth, and so ingesting large amounts could increase the risk of being infected with several diseases (Scacci, 2018). Blood is also the transmission route through which parasites, bacteria, viruses and other infectious agents can be transmitted from one individual to another. Therefore, direct consumption of blood exposes one to these microbial agents.

Consumption of raw blood of pigs or other animals in a dish known as "tiet canh" having its main ingredients as coagulated, fresh, uncooked blood mixed with chopped cooked pork tissues has been found to be associated with *Streptococcus suis* infection (Scacci, 2018).

Streptococcus suis infection is a zoonotic disease caused by the bacterium *Streptococcus suis* (*S. suis*) and one of its modes of transmission to humans is by ingestion or through mucous membranes and blood (Centre for Health Protection, 2019).

S. suis causes a systemic infection in humans that affects many organs in the human body; meningitis is the most common clinical manifestation (Wangkaew *et al*., 2006). Patients are often presented with skin findings such as petechiae, purpura, and ecchymoses, all of which can be severe (James *et al*., 2009). Meningitis is often characterized with bacteraemia, similar to *Streptococcus pneumoniae* and *Neisseria meningistidis* meningitis (Dupas *et al*., 1992).

Healthy human blood is enriched with iron. Eliminating iron from the body when in excess becomes challenging. When human blood is ingested or fed on, there is a risk of iron overload, a condition referred to as Haemochromatosis (Scacei, 2018). This condition may be hereditary

or triggered by other underlying illnesses (Scacei, 2018). Individuals with genetic haemochromatosis could trigger this condition by the intake or consumption of blood leading to the development of life-threatening disorders, such as heart disease, liver disease, and diabetes (Scacei, 2018), resulting from the storage of excess iron in the liver, pancreas and heart.

Nevertheless, iron toxicity can remarkably elevate the levels of 'free' iron in the body (Scacei, 2018). Studies show that an individual's blood can be used for platelet-rich plasma therapy (PRP) which can help heal wounds (Chicharro-Alcantara *et al*., 2018).

Animal and human blood can contain blood borne viruses such as hepatitis C and B viruses, human immunodeficiency virus (HIV), etc. The above diseases are found to affect the haematological parameters of the body.

Increased consumption of fat increases the risk of atherosclerosis, which can lead to cardiac complications. Consumption of fat can be a major cause of obesity, hypertension, diabetes and gall bladder disease, this could be a trigger for breast cancer directly through elevated estrogen level in the blood or by increased obesity (Torres *et al*., 2015; Sacks *et al*., 2017; Chan, 2022).

Laboratory Diagnosis Fasting lipid profile which involves triglyceride, low density lipoprotein (LDL), high density lipoprotein (HDL), and cholesterol. A raised blood cholesterol levels results to an increased risk of atherosclerosis (Kuller, 1997) which causes cardiovascular diseases and can in turn affect the blood vessels causing a pathological clot formation in the arteries resulting from an excessively activation of haemostasis in the absence of bleeding; a condition known as thrombosis (Rasche, 2001).

In arterial thrombotic state, there is an elevated level of fibrinogen and prothrombin time (PT) leading to abnormalities in blood clotting factors. Complications of this condition depend on the location where thrombosis has occurred; most severe conditions include stroke, heart attack, and serious breathing issues (John Hopkins Medicine, 2021).

Various laboratory tests are done to detect blood borne viruses, such as test for HIV 1 & 2, hepatitis B, hepatitis C, and syphilis.

2.2 The Law against Consumption of Dead Animals, Associated Diseases, and the Haematological Perspective.

In addition to looking at the way of life of the orthodox Jews, consumption of dead animals rather than disposing them off are associated with several health implications, in addition to the fact that they contravene laws of purity (Aikaterini *et a*l., 2018). Dead animals' carcasses can be a cause of several diseases that are harmful and even deadly to humans when consumed (Animal Remover Nuisance Wildlife Management, 2017).

Tularemia is one of the diseases contracted when humans come in contact with an infected dead animal carcass (Animal Remover Nuisance Wildlife Management, 2017). According to Centers for Disease Control, tularemia is caused by a bacterium known as *Francisella tularensis* and humans frequently contact this when they ingest or inhale contaminated liquids or dust when they are bitten ticks or deadly flies, or come in physical contact by touching of the infected animal (Animal Remover Nuisance Wildlife Management, 2017).

Leptospirosis is a disease that can be contracted by humans through handling of an infected dead animal, this is also known as Weil's Disease (Animal Remover Wildlife Management, 2017). It is caused by pathogenic spirochetes of the genus *Leptospira*. Animals typically mice and rat serve as reservoir for this *Leptospira* and are asymptomatic to the disease, carrying the pathogen in the tubules of the renal, and pass these pathogenic spirochetes in their urine (Cagliero *et al*., 2018). The disease can progress to causing multi-organ injuries such as liver damage, kidney failure, and even death if not properly treated (Animal Nuisance Wildlife Management, 2017).

Laboratory Diagnosis Tularemia is usually diagnosed through blood tests detection of *F. tularensis* in a clinical specimen done by a direct immunofluorescence assay (DFA), immunohistochemical staining, or polymerase chain reaction (PCR) assay; this enables for the detection of antibiotics of *F. tularensis* through a serologic test by the collection of serum at least 14 days after onset of illness (Centers for Disease Control and Prevention, 2010). Seroconversion from negative to positive lgM and/or lgG antibodies in paired sera and cultures of specimens which includes swabs or scrapping of ulcers, lymph node aspirates or biopsies, pharyngeal swabs plural fluid can also be used for its detection (Centers for Disease Control and Prevention, 2010).

Tularemia has the potential of affecting various body organs such as the heart, liver and can cause infection of the blood (sepsis) and various bone infections (osteomyelitis), thereby leading to coagulation abnormalities, mainly aprothrombotic state occurring during sepsis (Tsao *et al.,* 2015). In severe sepsis, there is a dysregulation of the haemostatic parameters which may cause disseminated intravascular coagulation (DIC) resulting in microvascular thrombosis, hypo perfusion or death (Hardaway *et al.,* 2001). Diagnosis for leptospirosis is mainly done by serology; enzyme linked immunosorbent assay, microscopic agglutination tests and polymerase chain reaction assays (Musso & La scola, 2013).

Individuals with leptospirosis have been found to have some coagulation abnormalities which includes prolonged prothrombin time (PT), activated partial thromboplastic time (aPTT), increased fibrinogen, thrombocytopenia and may sometimes manifest haemorrhage which causes cause a reduction in the red blood cell count (Threeswaran *et al*., 2020).

2.3 Separation of Individuals with Leprosy and the Haematological Perspective

Many religious laws place a strong value on a healthy living, observing it as an act of worship to God. Leviticus 13 gives details of the laws about leprosy. Leprosy is a chronic infectious disease. The causative agent is the *Mycobacterium leprae*; an acid-fast, rod-shaped bacillus (World Health Organization, 2022). Leprosy is an age-old infectious disease that affects different haematological parameters. It is considered as a disease that mainly affects the superficial tissues which involves the skin and peripheral nervous system; and this causes a wide array of cellular immune responses at the onset of the disease (Smith, 2020). This law was given as the preventive measure to avoid the spread of the disease among the children of Israel.

Leprosy can manifest in various forms, depending on the immune response of the host to the causative agent (Smith, 2020). Individuals with a strong immune system tend to develop the tuberculoid form of the disease and tend to have low number of the bacteria (paucibacillary leprosy) in the skin lesions, for individuals with a minimal cellular immune response to the organism developing the lepromatous form of the disease characterized by increased skin involvement in which the organism grows best at 27-30^{o}C having a large number of the bacteria found in the lesions (multibacillary leprosy), however, people can show features of both tuberculoid and lepromatous forms referred to as borderline leprosy (Smith, 2020).

Laboratory Diagnosis

Detection of *Mycobacterium leprae* in slit skin smear is the gold standard technique for the diagnosis of leprosy. Moreover, molecular methods like polymerase chain reaction (PCR) are found to have higher sensitivity than slit skin smear in its diagnostic efficiency detecting more than 50% of the cases not covered by slit skin smear (Siwakoti, 2016).

Lepromin skin test is also used in the determination of the type of Hansen's disease (leprosy) a person has contacted (Burke, 2022). A haematological study carried shows that their haemoglobin, packed cell volume, serum albumin and serum iron are significantly lower among patients with lepromatous leprosy (Kara & Rao, 1977).

2.4 Laws against Eating Swine and Fish without Scales and Fins, Associated Diseases and their Haematological Perspectives

This law gives an account that people who eat pork meat (swine) and/or fishes without scales are

unclean and are prevented from entering the temple. Consumption of swine are associated with disease transmission to humans and most times, these swine are infected with parasites such as *Taenia solium* and *Taenia asiatica* which cause a parasitic infection called Taeniasis. *Taenia solium* tapeworm infections can result in cysticercosis; an intestinal infection (Centers for Disease Control and Prevention, 2020).

The water which is the habitat of fishes when polluted with trace elements such as mercury, lead, copper, etc. are absorbed by these fishes without scales posing a health threat given by their increased level of contaminant (Catholic World Today, 2022). The human body handles a certain quantity of these elements. Basophilic stippling: a haematologic picture seen on stained Romanowsky slides is diagnostic of lead poisoning and can also be a pointer to various heavy metal toxicities (Sanchez & Lynch, 2022).

Laboratory Diagnosis

Haematological diagnosis includes full blood count and blood film examination for blood cells abnormalities. There are risks of intestinal infections associated with intestinal bleeding often associated with the consumption of pork. This often causes iron deficiency which in turn leads to decrease in the red blood cell count resulting in anaemia and increased eosinophil counts (Al- Morshidy, 2020).

A peripheral thin blood in individuals suffering from lead poisoning or other heavy metal toxicity shows the presence of small colored grains that are sometimes seen in young red cells when viewed under a microscope and is reported as “slight”, 1 + to 4+ (“one plus” to “four plus”) depending on the number of red blood cells that have it (Biron, 2022).

Basophilic stippling can be found in some conditions such as liver damage, several forms of anaemia, infections (intestinal infections), malnutrition and disease of the bone marrow (“Biron,” 2022). Exposure of the blood cells to toxins results to the alteration in function of red cells, the toxic effect is exerted on the haematopoietic system of the individual (Piomelli, 1981).

2.5 Male Circumcision on Day 8 and its Haematological Perspectives

Circumcision is a one-of-a-kind ritual of the Mosaic regulation, given to the Israelites from the very beginning in their nation's records with the patriarch Abraham (English Standard Version, 2001, Genesis 17). As such, the biblical foundation and recent argument surrounding circumcision plays main roles in understanding the topic's history, significance, and current relevance (Uhlmeyer, 2022).

Even earlier than the regulation was given to Moses by God, commandment was given for all the seed of Abraham (8 days or older male children) “to be circumcised in the flesh of your foreskin” (English Standard Version Bible, 2001, Genesis 17: 11-12). This was done for all the sons of Israel and was a signal of God's covenant with Abraham (English Standard Version Bible, 2001, Genesis 17: 13-14). Later, when the law was fully revealed to the children of Israel, it involved a command for each newborn male to be circumcised on the day eight (English Standard Version Bible, 2001, Leviticus 12:3).

Although, circumcision is one of the most practiced medical procedures done worldwide (Blank *et al.,* 2012), worries over moral and clinical dangers had been raised (Friedman *et al.,* 2016). The haematological view about circumcision involves the role of haemostasis and the peculiarity of the day eight (Christian & Koate, 2017). The Levitical regulation specifies for circumcision to be accomplished at the 8th day of a baby's life (English Standard Version Bible, 2001, Leviticus 12:3). Beyond any theological meaning, there can also be clinical reasons for this stipulation (Uhlmeyer, 2022). Prevention of bleeding is a key role subject for this medical procedure, mainly because it is “the most likely complication” (Christian & Koate, 2017) to arise from the procedure (Uhlmeyer, 2022), because of the development of the haemostatic pathway in the body, healthy newborns are exposed to a reduced bleeding during circumcision. This contributes to a highly brief restoration procedure for newborns which are being circumcised (Uhlmeyer, 2022). Vitamin K and thrombin play a major role in coagulation and the

prevention of haemorrhage (Christian & Koate, 2017). As a matter of fact, administration of a shot of vitamin K to newborns is now a standard in the medical field (Blank *et al.* 2012). Vitamin K which physiologically peak on day eight helps in the synthesis or production of coagulation factors II (prothrombin), VII, IX, and X in a procedure known as gamma glutamyl carboxylation (Christian & Koate, 2017).

Haemostasis involves the mechanism of blood clotting in the human body (Uhlmeyer, 2022). Each of these essential compounds attains its highest level in the newborn male at the day eight of the child's life (Uhlmeyer, 2022). Circumcision: an exercise critical to the Jewish religion and Mosaic regulation has been confirmed to extensively affect human health.

2.6 The Law against having Sexual Intercourse with a Woman on Her Menstrual Flow, Associated Diseases and Haematological Perspectives

In the third book of the Pentateuch or Torah and especially, in the code of legal purity of the laws of Moses (English Standard Version Bible, 2001, Leviticus 11: 1-15-33), it is stated that a woman having a menstruation is perceived to be unclean for seven days and whoever touches her shall be unclean until evening (English Standard Version Bible, 2001, Leviticus 15: 19). However, "if a man actually has sexual intercourse with her, the lady's menstrual impurity is on him, he shall be unclean seven days, and every bed on which he lies shall be unclean" (English Standard Version Bible, 2001, Leviticus15: 24).

Medically, there are health risks associated with having sexual intercourse with a menstruating woman: vaginal sexual intercourse without protection (e.g. use of condom), during or shortly after her menstruation is a risk factor for the heterosexual transmission of human immunodeficiency virus (HIV) or other sexually transmitted pathogens and may also lead to the transmission of sexually transmitted diseases (STDs) (Tranfer and Aral, 1996; Sweet *et al*., 1998; Nowicki *et al*., 2000; NHS Choice, 2015). Transmission of these diseases is aided by loss of the protective barrier (cervical mucous plug), the presence of iron in the menstrual fluid, the dilated cervical opening, the elevated alkaline pH of the vagina and the premenstrual peal of the hormones: estrogen and progesterone (Ben-Noun, 2003; Tranfer & Aral, 2022; Wagner & Ottesen, 2022).

Vaginal sexual intercourse with a menstruating woman results in increase in the flow of menstrual blood (Mazokopakis & Samonis, 2018), this is as a result of the veins found in the uterus which are congested and are easily ruptured, and thus, may be damaged easily. This may cause some women to experience their flow within two days after intercourse (Mazokopakis & Samonis, 2018).

The possibility of the woman getting pregnant may be slim but may not be totally ruled out, this is because the sperm deposited by the man could survive within few days and, in the case of early ovulation can lead to pregnancy, which may not be planned for most times (Mazokopakis & Samonis, 2018).

Having coitus through the vagina with a woman on her period is a potential risk factor for the development of endometriosis (Mazokopakis & Samonis, 2018). Endometriosis is a hormone-dependent, chronic inflammatory gynecological disorder involved with the presence of endometrial tissue in areas of the body other than the uterine cavity (Taylor *et al*., 2011; Brown & Farquhar, 2014). Clinical features associated with this condition includes pelvic pain, dysmenorrhea (cyclical pain associated with menstruation), dyspareunia (painful coitus), and abnormal uterine bleeding and sometimes, infertility (Chen *et al*; 2016; Buggio *et al*., 2017). This law had to be obeyed by the children of Israel under the harsh condition of the desert, aiming at promoting the health of Israelites and inhibiting the spread of diseases among themselves (Mazokopakis & Samonis, 2018).

Laboratory Diagnosis

Serological tests such as HIV 1& 2 rapid test are being done. Full blood count is also done, women with endometriosis have changes in peripheral blood and peritoneal fluid white blood cell (WBC) were increased (Hooghe *et al*., 1996). The uterine bleeding associated with

endometriosis leads to a reduction in the red blood cell count and percentage volume of blood (PCV) which results to anaemia. Peripheral blood films of patients with HIV & STDs show decrease in low platelet counts (thrombocytopenia), the white cell count is also reduced (Mark Cichocki, 2021).

2.7 Postpartum Confinement and the Haematological Perspective

The duration of confinement purification became critical for Jews because it contributed to mothers' purification, when a mother is delivered of a male child, she was considered unclean for seven days, and on the 8th day, the mother performs the circumcision of the male child, and would remain unclean after that for another 40 days, whereas, if a mother is delivered of a female child, the mother would be said to be uncleaned for 14 days, and additional 60 days due to her impure blood. After this period of confinement, she is asked to offer a sacrifice to the priest for purification (Uhlmeyer, 2022).

Medically, this law is important haematologically because it makes provision for the mother to be in a state of body rest creating time for the rejuvenation of blood cells lost during childbirth which in turn, have a great impact on the health of the mother and haematopoietic activities (Arbib, 2016).

2.8 Laws against Alcohol Consumption and its Haematological Perspectives

Several studies have indicated that intake of alcohol directly affects haematological and haemostatic parameters through a few mechanisms involving modulation of plasma coagulation factors, fibrinolysis, platelet function, red cells parameters and/or indices, and also white cell parameters (Adias *et al*., 2013; Erhabor *et al* & Nikaj *et al.,* 2014; Eze *et al*., 2018).

Chronic consumption of alcohol can expose a person to haemorrhage (Arjun & Chaitali, 2015). A study of patients in studies carried out in the United States and Sweden indicated that the baseline incidence of acute gastrointestinal bleeding is three times elevated when the alcohol consumption was increased from a drink or fewer per week to more than 20 drinks per week (Kaufman *et al.*, 1999).

Based on the haematological and haemeostatic derangement caused because of alcohol consumption, the Biblical law that is against alcohol intake has been haematologically underpinned to be unhealthy and can lead to liver damage, bleeding abnormalities; and red cell membrane destruction which results in the inability of red cells to effectively deform and transverse through the various veins, arteries, capillaries and sinuses to transport oxygen and nutrients.

3.0 Conclusion

The regulations and customs of the Mosaic law have been established in Jewish life and practice for thousands of years. The laws of Moses were designed to encourage the nation Israel to understand the need for cleanliness, healthy living, and systematic processes towards restoration of health which were the health benefits that religious adherence to such laws brought.

Disobedience to these laws has been found to pose serious health challenges. Consumption of blood causes serious health risks to the individual and could serve as a medium for the transmission of diseases. Tularemia and leptospirosis are diseases associated with the consumption of infected dead animals which lead to coagulation abnormalities. Separation of individuals with leprosy appear to reflect modern principles of quarantine; a preventive measure to avoid the spread of the disease among the children of Israel. Consumption of swine is associated with diseases such as taeniasis and cysticercosis. Absorption of heavy metals by fishes without scales tend to pose a health threat by their increased level of contaminant which cause basophilic stippling in red cells. Male circumcision on day 8 as instructed by the Mosaic law is based on the fact that clotting factors are at their peak on day 8. High transmission rate of sexually transmitted diseases is common during sexual intercourse with an infected woman on her menstruation. Postpartum purification is of haematological significance in the rejuvenation of the blood cells lost during childbirth. Alcohol consumption has been haematologically underpinned as one of the leading causes of liver damage, bleeding abnormalities and red cell membrane destruction. Overall, the correlation between the

observance of some of these Mosaic laws and human health shows the divine wisdom behind the commandments and encourages further research into their effects on the human body.

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