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RISK PREGNANCY

– Preeclampsia

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RISK PREGNANCY- PREECLAMPSIA

Background: In Sub-Saharan Africa more than 270,000 women die from maternal deaths, worldwide approximately 76,000 women and 500,000 babies die yearly due to preeclampsia. It affects about 6-8 % of all pregnancies. (AbouZahr & Wardlaw 2001, 17; ACOG 2002, 2; WHO 2007, 17-18.) Studies have shown that up to 77% women affected with preeclampsia lack knowledge about preeclampsia, and therefore cannot take preventative measures (East et al. 2011, 1-6.)

Objective: To increase the knowledge about preeclampsia to women with a high-risk pregnancy and to create a webpage in Terveysnetti.

Methods: A literature review was carried out on how to create effective webpages that are viewed as trustworthy. Different aspects of a webpage increase the trustworthiness of the site. HON Code defines 8 principles that go to the trustworthiness: authoritative, complementarity, privacy, attribution, justifiability, transparency, financial disclosure and advertising Policy.

Results: Basic information was transformed into webpages and uploaded to Terveysnetti. These webpages are available for women seeking knowledgeable advice regarding preeclampsia.

Conclusion: Lack of adequate knowledge about preeclampsia was found to be a contributing factor to the high rate of maternal deaths.

KEYWORDS:

Preeclampsia, Pregnant women, Knowledge, Experience, Maternal mortality rate.

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List of Abbreviations (OR) Symbols

BMI	Body Mass Index
BP	Blood pressure
GBD	Global Burden of Disease
HD	Hypertensive Disorder
HELLP	Hemolysis; Elevated Liver enzymes; Low Platelets
ICD-10	International Statistical Classification of Diseases and Related health Problems (10th Revision)
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
MMRate	Maternal Mortality Rate
PE	Preeclampsia
PIH	Pregnancy Induced Hypertension
PMNS	Peninsula Maternal and Neonatal Service
SSA	Sub-Saharan Africa
UNICEF	United Nations Children's Fund
UNPD	United Nations Population Division
WHO	World Health Organization

1 INTRODUCTION

Preeclampsia (PE) is defined as a serious complication of pregnancy. It is a multisystem disorder characterized by the onset of gestational hypertension (140/90 mm Hg or more, measured in two separate readings taken at least 6 hours apart) and the presence of protein in the urine – proteinuria (defined as reading greater than 300 mg in a 24 hour urine collection; 1+ or more on dipstick testing or a protein: creatinine ratio ≥ 30 mg/mmol on a random sample.) Preeclampsia occurs after 20 weeks' gestation. It may also occur up to six weeks after child birth (postpartum). Other organs of the body such as kidney and liver may be damaged. Pregnancy complications due to preeclampsia include low birth weight, pre-term birth and still births. PE may have further consequences to the mother. (Duley et al. 2001, 329; Milne et al. 2005, 576; Duley et al. 2006, 463; Lloyd 2009, 398.)

An estimated 536,000 maternal deaths occur annually. Of those, 270,000 occur in Sub-Saharan Africa. About 76,000 women and 500,000 babies die yearly worldwide due to PE. It is believed that preeclampsia affects approximately 6-8% of all pregnancies, though the exact incidence rate remains unknown. (AbouZahr & Wardlaw 2001, 17; ACOG 2002, 2; WHO report 2005, 63). In Finland about 5% of all pregnant women are affected by preeclampsia (Terveyskirjasto 2009).

This thesis is in twofold: the prevalence of preeclampsia globally and the affect it has on maternal deaths; and pregnant women's knowledge about preeclampsia. Studies show that pregnant women lack adequate knowledge about preeclampsia (Oyira et al. 2009, 1-6; East et al. 2011, 1-5). This knowledge could potentially prevent pregnancy complications and prevent maternal deaths (Oyira et al. 2009, 1-6; East et al. 2011, 1-5). It is for these reasons that this topic was chosen, as to shed more light to the population who are affected by preeclampsia.

The task of this project is to create a webpage in Terveysnetti. The aim of the project is to increase knowledge about preeclampsia to the selected population.

2 PREECLAMPSIA DISORDER

Preeclampsia falls into the category of hypertensive disorders (Lloyd 2009, 398). Until the mid-1990s preeclampsia was a disease of first pregnancies, affecting most women's first pregnancy (Robillard et al. 2007, 2). The pathophysiology of preeclampsia is still unknown. 'Preeclampsia has been described as a disease of theories, because the cause is unknown.' (DeCherney & Nathan 2003, 338; Sibai et al. 2005, 788; Zamorski 2008, 9.) The following is one of a couple theories for the causes of preeclampsia.

2.1 Aetiology

Development of preeclampsia is said to occur in two stages, with the placenta being the primary cause of hypertensive disorders. In normal development during the first stage in early pregnancy, the muscular walls and endothelium undergo changes (eroding of spiral arteries, which supply blood and nutrients to the placenta) to ensure an optimum environment for the developing blastocyst. The second phase is between weeks 16 and 20. Those changes that occurred during the first phase lead to dilated vessels that are incapable of vasoconstriction. This leaves the blood supply system to the uterus with low pressure and high blood flow resulting in maximum placental perfusion. In this theory it is believed that preeclampsia, inhibits the erosion of spiral arteries, therefore causing decreased placental perfusion. Decreased placental perfusion can lead to early placental hypoxia and oxidative stress. PE is difficult to clinically detect in the first stage. (Roberts et al. 2005, 1243-1244; Lloyd 2009, 398-399.) Refer to Figure 1.

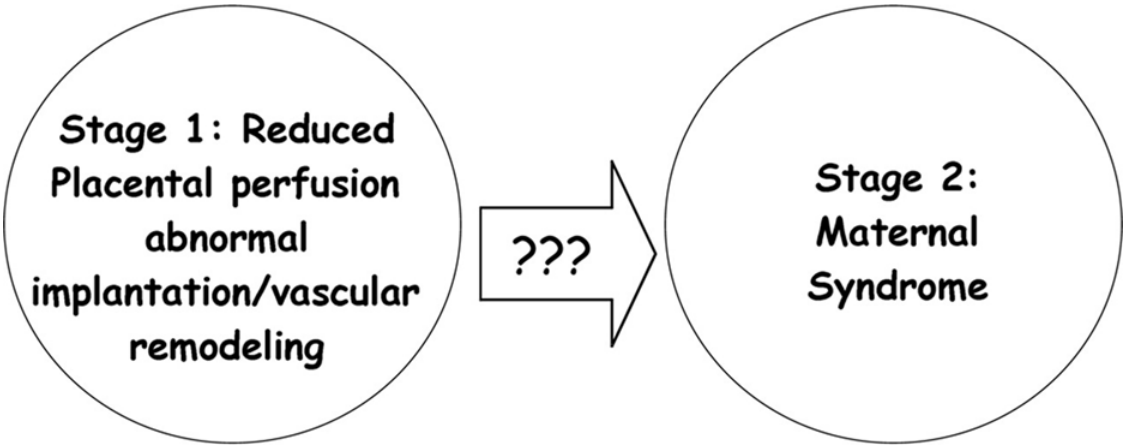


Figure 1.Two-stage model of the pathophysiology of preeclampsia (Roberts et al. 2005, 1244).

During the second stage of preeclampsia, one factors leads to another. As mentioned before, decreased placental perfusion can lead to an oxidative state. The oxidatively stressed placenta triggers the release of one or more factors. This leads to damaged endothelial cells of the endothelium. Due to the maternal systemic inflammatory response to the endothelial dysfunction, clinical signs of preeclampsia become evident but only after the 20th week of gestation. (Roberts et al. 2005, 1243-1244; Lloyd 2009, 399.)

Endothelial cells help to regulate capillary transport, the control of plasma lipid contact, modulate vascular smooth muscle in response to stimuli and synthesize prostacyclin and nitric oxide. Both prostacyclin and nitric oxide aid in vasodilation and prevent platelet accumulation. Therefore, inhibiting the formation of blood clots. Damaged endothelial cells resulting from the inflammatory response will lead to the following: reduced the production of prostacyclin and nitric oxide, which can lead to the formation of blood clots; increased production of thromboxane (Tx), a vasoconstrictor; increased vascular sensitivity to angiotensin II (controls blood pressure and helps with the excretion of salt and water) which activates coagulation cascade and triggers abnormal intravascular coagulation; and an increased oxidative stress. (Lloyd 2009, 399; Shaker et al. 2011, 539-540.)

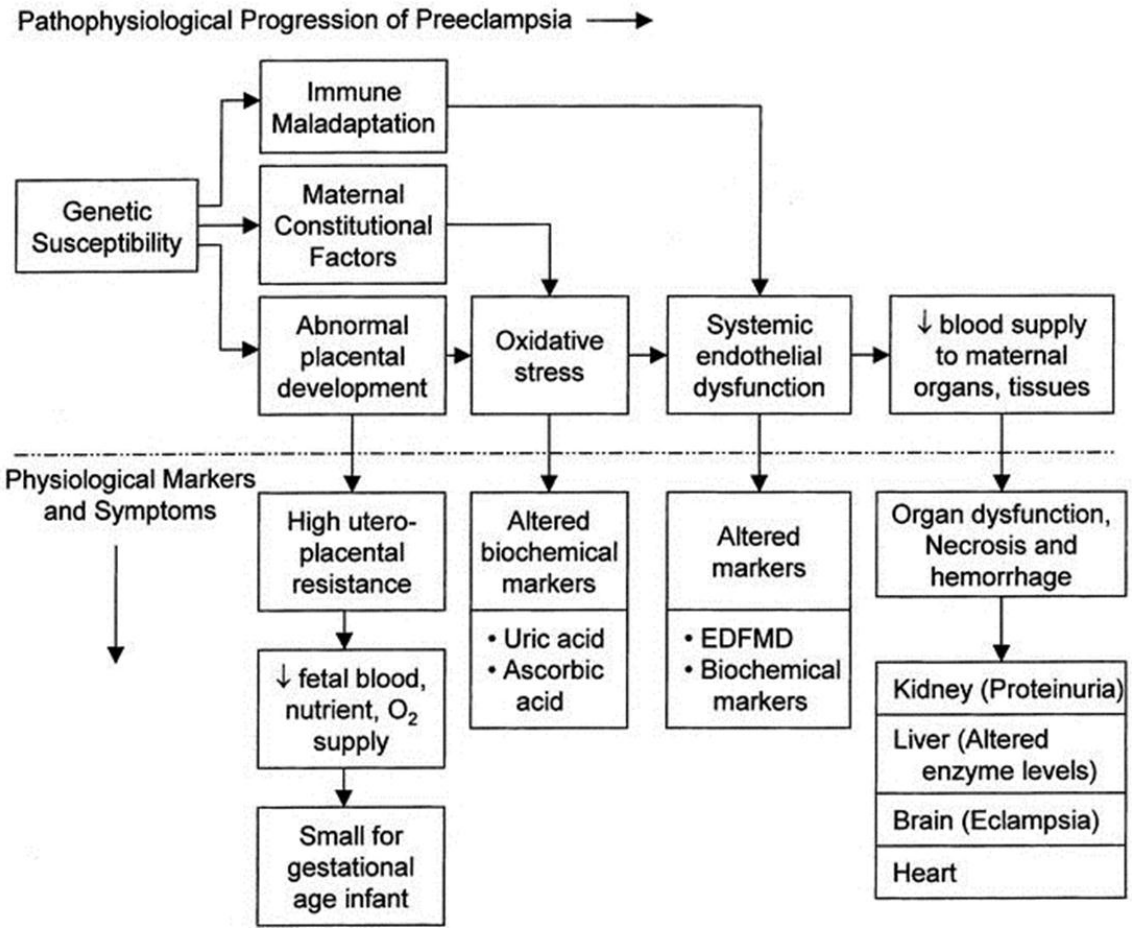


Figure 2. Pathophysiological Progression of Preeclampsia (Weissgerber 2004, 2024-2031).

Central Nervous System

Auto-regulation is the process by which tissues are capable of regulating their own blood flow. The blood pressure may rise to a level at which auto-regulation is no longer able to function causing the blood-brain barrier to increase its permeability. This results in cerebral edema. Cerebral edema is seen in more patients with severe preeclampsia or eclampsia itself. Studies related to cerebral edema in preeclampsia are still inconclusive. (DeCherney & Nathan 2003, 339-340; Lloyd 2009, 400.)

Cardiovascular & Pulmonary System

Hypertension combined with the endothelial cell damage affects capillary permeability. Plasma volume decreases because plasma proteins leak from the

damaged blood cells. It also causes hypovolemia and hemoconcentration. This is reflected in an elevated hematocrit level. The plasma that leaks from the damaged blood cells, increases edema within the extracellular space. Again this is just one theory as to the effects on the cardiovascular system. (DeCherney & Nathan 2003, 340-341; Lloyd 2009, 399-400.)

In severe preeclampsia or eclampsia pulmonary edema may occur. It may be cardiogenic or non-cardiogenic. In these severe cases, lungs may become filled with fluid leading to less oxygenation and cyanosis. This complication may lead to death. (DeCherney & Nathan 2003, 340; Lloyd 2009, 399-400.)

Blood

In most patients with preeclampsia, clotting systems are normal. However, some patients have thrombocytopenia. Vasoconstriction and the dysfunctional endothelium go on to activate the coagulation cascade. It results from platelets being trapped in fibrin clots. The accumulation of these platelets causes thrombocytopenia. Disseminated intravascular coagulation (DIC) is characterized by low platelets, prolong prothrombin time and low fibrinogen levels. As fibrin levels increase and fibrin and platelets are deposited, the blood flow to many organs is reduced, especially to the kidneys, liver, brain and placenta. This condition can cause complications that can lead to hemorrhaging during birth. (Lloyd 2009, 400.)

Kidneys & Liver

Hypertension of the kidneys can lead to vasospasm resulting in decreased renal blood flow. The reduced blood flow can lead to hypoxia and edema of the endothelial cells of the glomerular capillaries. This glomeruloendotheliosis allows plasma proteins, in the form of albumin, to flow into the urine (proteinuria). As the condition worsens, oliguria develops, an increased serum creatinine, uric acid and reduce creatinine. Hypertension of the hepatic vascular bed also results in hypoxia and edema of the liver cells. This may lead to swelling of the liver and causes upper abdominal pain. This sign is indicative of preeclampsia. Liver function is reflected by a decrease albumin level and rise in liver enzyme levels. (Reynolds et al. 2003, 341; Lloyd 2009, 400.)

Signs & Symptoms

Preeclampsia presents as hypertension associated with proteinuria. Hypertension is a blood pressure of over 140/90 mm Hg on at least two separate occasions, 6 hours apart. It can also be a significant increase in either the systolic or diastolic readings. (Sibai et al. 2005, 786; Lloyd 2009, 398.) The National High Blood Pressure Education Programme classifies proteinuria as ' 1+ (300 mg/L or more) on dipstick testing, a protein: creatinine ratio of ≥ 30 mg/mmol on a random sample, or a urine protein excretion of ≥ 300mg/24 hours' (see Lloyd 2009, 398). Preeclampsia can be diagnosed without the onset of proteinuria with the following symptoms: severe headaches, blurred vision, upper abdominal pain, and/or altered biochemistry. These include raised urates, low platelet counts and abnormal liver enzyme levels. (Murray et al. 2002, 279; Lloyd 2009, 398; Zamorski et al. 2001, 263-264.)

Affects to the Mother & Fetus

Severe PE may lead to the development of a more complicated and serious condition of HELLP or DIC. The mother has a greater risk of hemorrhaging during birth and postpartum. This is because of the potential blood disorders associated with PE. PE can also affect the mother's heart, brain, liver, kidneys and eyes. Studies have shown that women who suffered from PE are at an increased risk of developing cancer and cardiovascular conditions later in life. In more severe cases of PE a stroke or even death may occur. (Sibai et al. 2005, 785-786; Bellamy et al. 2007, 974.)

The fetus is also susceptible to complications resulting from PE. Most common is preterm birth, before 37 weeks gestation. In conjunction with preterm birth, many babies have a low birth weight. Other complications include respiratory distress syndrome and growth retardation. In more serious cases of PE, placental abruption (the separation of the placenta from the uterus) or even death may occur (still birth). (Sibai et al. 2005, 786; Bellamy et al. 2007, 974.)

2.2 Global burden of hypertensive disorders & mortality

Maternal death as defined by the International Statistical Classification of Disease Maternal death as defined by the International Statistical Classification of Disease and Related Health Problems, Tenth Edition,

> 'The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes' (ICD-10).

Maternal deaths can occur from either direct or indirect causes. Direct causes obstetric deaths would be from complications of the pregnant state. For example this includes hemorrhage, preeclampsia or cesarean sections. Indirect obstetric deaths would be deaths that occurred due to an existing disease or were accelerated due to the pregnant states. This might include existing cardiac conditions or renal disease. (WHO 2007, 4.)

According to the WHO (2007, 4) there are two factors affecting maternal deaths. The first is the risk of mortality in conjunction with a single pregnancy or a single live birth, and the second being, the number of pregnancies or births that are experienced by women of child-bearing age. The MMR (maternal mortality ratio) is defined as the number of maternal deaths in a population during a given time period per 100,000 live births during the same time-period. The MMR shows the risk of maternal death that is relative to the number of live births. In comparison, the MMRate is defined as the number of maternal deaths in a populations during a given period per 100,000 women of reproductive age during the same time-period. The MMRate shows deaths per pregnancy and per birth. The adult lifetime risk of maternal mortality for women can also be calculated from the MMR and MMRate. Refer to Table 1. (WHO 2007, 4-5.)

Table 1. Definitions

Maternal mortality ratio	# of maternal deaths during a given time- period 100 000 live births during the same time-period
Maternal mortality rate	# of maternal deaths in a given period 100 000 women of reproductive age during the same time-period
Adult life time risk of maternal death	The probability of dying from a maternal cause during a woman's child-bearing years

In 2005 of the estimated 536,000 maternal deaths, 533,000 (99%) occurred in developing countries. Of these 270,000, more than half, occurred in Sub-Saharan Africa. The MMR as defined by the United Nations MDG was the highest (920) in SSA in 1990 and dropped to 900 in 2005. However the maternal deaths in 1990 were 212,000 compared to the 270,000 in 2005.Other statistics by the United Nations MDG include a life time risk of maternal death (1:x) of 1: 22 in the SSA in 2005. (WHO 2007, 17-18.) All of the figures from 1990 and 2005 are shown in Table 2. and Table 3.

Table 2. MMR and # of Maternal Deaths in 1990 and 2005 (WHO 2007, 35-38).

Comparison by	**1990**		**2005**	
	MMR	# of Maternal deaths	MMR	# of Maternal deaths
UNICEF	940	206 000	920	265 000
UNFPA	940	204 000	920	260 000
The World Bank	920	212 000	900	270 000
UN MDG	920	212 000	920	270 000

Table 3.Lifetime Risk of Maternal Death (WHO 2007, 35-38).

Organization	MMR	# of Maternal Deaths	Lifetime risk of maternal death 1:
UNICEF	920	265 000	22
UNFPA	920	260 000	22
The World Bank	900	270 000	22
UN MDG	920	270 000	22

The WHO commissioned evidence and information about the global burden of hypertensive disorders in 2000 by Dolea & AbouZahr (2003, 4). They stated that there are several risk factors that contribute to preeclampsia/eclampsia. The factors include-type 1 diabetes, gestational diabetes, twin birth, obesity, previous miscarriage and longer intervals between pregnancies. (Dolea & AbouZahr 2003, 4.)

The WHO divided the regions into categories. Of the five sub-categories, two are within the SSA region. These two regions both had a PE incidence rate of 2.8% of all births. Unfortunately these results are not exact. These incidents were recorded from hospitals where many births occur outside the hospital. Despite the fact that the GBD in Dolea & AbouZahr (2003, 4-7) put preeclampsia and eclapsia together, the total case fatality was still 0.1% to 4.0% with an overall mortality of 14% of all maternal deaths. Preeclampsia/eclampsia account for about 50% of all hypertensive disorders. Since elcampsia can occur without the onset of seizures, and coupled with the lack of resources to detect preeclampsia, reporting can only be estimated. (Dolea & AbouZahr 2003, 4-7.)

South Africa

The WHO launched the Safe Motherhood Initiative at a global conference in 1987 in Nairobi, Kenya. The goal of this initiative brought light to the immense differences in MMRs between developed and developing countries. It was

because of this initiative that South Africa was the first to adopt an ongoing National Audit and Confidential Enquiries into Maternal Deaths. Unfortunately, like many other developing countries, accurate reporting was difficult since data collection for a part of the MMR was inaccurate (live births or deliveries). (Fawcus et al. 2005, 1257-1258.)

One of the participating hospitals was the Peninsula Maternal and Neonatal Service (PMNS) in Cape Town. The maternal services were comprised of Midwife Obstetric Units (MOUs), secondary hospital and a tertiary unit. A 50-year audit was collected from 1953-2002 and compiled to compare trends in rates and causes of deaths. The years were put into three triennias (2954-1956, 1981-1983 and 1999-2001). (Fawcus et al. 2005, 1257-1258.)

The MMR (as seen in Table 4.) in 1954-1956 was significantly higher than the other two triennias. Fawcus et al. (2005, 1261-1262) believes that the decline from 1953-1985 was due to a couple of reasons. One reasons might be due to that during that time period PMNS switched to MOUs from a previous primarily midwifery run establishment. Also during this time an ambulance committed specifically for obstetric and neonatal emergencies was set into place. This primarily reduced the decline in deaths due to hemorrhaging. As knowledge progressed about hypertensive disorders affecting women, so did the critical care. This too contributed to the overall decline in hypertensive disorders. (Fawcus et al. 2005, 1261-1262.)

Table 4. Breakdown of MMR in 1954-1956, 1981-1983 & 1999-2001

Causes	1954-1956		1981-1983		1999-2001	
	# of deaths	**MMR**	**# of deaths**	**MMR**	**# of deaths**	**MMR**
Direct						
Hypertensive disorders	19	80.4	8	11.3	12	14.5

Causes	1954-1956		1981-1983		1999-2001	
	# of deaths	MMR	# of deaths	MMR	# of deaths	MMR
Hemorrhage	12	50.8	3	4.2	3	3.6
Suspected pulmonary embolism	6	25.4	2	2.8	3	3.6

While the methods of reporting and collecting data remained the same during the span of the research, the area in which PMNS served was greatly increased. Therefore it can be concluded that one of the denominators, that ultimately affected the MMR, may have inaccurately affected the MMR, exaggerating it, for that time period. On the other hand, if the effects on the MMR decline were due to the increase in women served, it would then have had a more equal decline effect to all of the MMR categories. Therefore, one would then have to believe there was a significant decline in the MMR. For this reasons, one needs to look at the other two triennas for more stable information. (Fawcus et al 2005, 1260-1262.)

In 1981-1983, the MMR for hypertensive disorders was 11.3 but rose to 14.5 in 1999-2001. Also during the same time periods, suspicion of pulmonary embolism increased from 2.8 to 3.6. While the MMRs for those two causes increased, the MMR for hemorrhage decreased from 4.2 to 3.6. As previously mentioned before, a special ambulance system was set into place specifically for obstetric and neonatal emergencies. (Fawcus et al. 2005, 1260-1262.)

Of the total deaths during 1954-1956, hypertensive disorders accounted for about one third (19/ 60). During 1981-1983, one fourth (8/32) of the recorded deaths were due to hypertensive disorders. However during the last triennia, only 23% (12/52) of the deaths were attributed to HD. Between the 1981-1983 and 1999-2001 the overall MMR from hypertensive disorders increased, while

the overall percentage of deaths by hypertensive disorders decreased. The epidemic of HIV/AIDS-related deaths increased during these two triennias. Despite the increase in HIV/AIDS-related deaths, one could argue both sides as to why this number could have increased or decreased. First of all, as technology advanced during these times and became available to South Africa, one would be led to conclude that deaths from hypertensive disorders would have increased. On the other hand, the MMR could have decreased as more knowledge about preeclampsia came to light, even though resources to manage hypertensive disorders were and are not available. (Fawcus et al. 2005, 1260-1262.)

Zambia

Zambia has one of the higher MMRs in SSA, and it also has one of the highest perinatal and infant mortality rates. A study was carried out in four rural area communities in Zambia to determine the causes of stillbirths, neonatal deaths and early childhood death. Information was collected verbally door to door. Areas were chosen at random, then every third house was selected and assessed for eligibility. After the information was collected by the auditors, each case was then reviewed by three pediatricians as to contributing factors for the death. (Turnball et al 2011, 894.)

The data showed only one stillborn death directly related to preeclampsia. This roughly accounts for only two percent of the stillborn deaths. However, after review by the pediatricians, 11% of the stillbirths could be contributed to maternal hypertension/pre-eclampsia. There were no deaths of a neonatal due to direct contributing factors of a hypertensive disorder

Zimbabwe

As previously stated, exact numbers of the effects of preeclampsia are not precise, but research has shown that specific factors influence the outcomes. Mudokwenuy-Rawdon et al. (2003, 40) points out that in developing countries about 1 in every 100 deliveries is complicated by preeclampsia/eclampsia. In Zimbabwe at Mpilo Central Referral Hospital (MCRH) about 20.7 % of obstetric deaths were due to severe preeclampsia/ eclampsia. For these reasons,

investigating factors contributing to maternal deaths from severe preeclampsia/eclapmsia would additionally address contributing factors in other causes of maternal death, and ultimately helping to reduce the overall maternal mortality. It should be noted that the final cause of death due to hypertension in pregnancy was due to intracranial hemorrhage (stroke), rupture of the liver and post-partum hemorrhage in South Africa at the time of the study. (Mudokwenuy-Rawdon et al. 2003, 40-41.)

In the retrospective study, Mudokwenuy-Rawdon et al. (2003, 41) set out to find if there are any difference in factors physiologically between those patients that survived (control) and those that died (cases), and if there any difference in care received by the surviving (control) and the non-surviving (cases). For every case (a woman who died from severe preeclampsia/ eclampsia), two controls (women who survived) were also selected. Files were collected from January 1, 1995 to December 31, 1997, in Bulawayo, Zimbabwe. In total there were 21 cases and 42 controls. During this time, overall statistics of the hospital were such: 89% of the maternal deaths were due to obstetric complications, of that about 20% were due to severe preeclampsia/ eclampsia; and the MMR was 407 in 1995 and 275 in 1997. (Mudokwenuy-Rawdon et al. 2003, 44-46.)

Physiological factors such as anemia and blood pressure were not a physiologic indicator that a patient would have a greater risk for mortality, since findings were contradictory. It was confirmed that that gravidity was a contributing factor to preeclampsia. The most affected group in both cases and controls was primigravida and gravid ≥ 4. However, there was no significant difference between the two groups to suggest it would or wouldn’t lead to death. Both cases and controls received C-sections (90% cases and 93% controls). These results suggest a high rate of patients presenting with PE or eclampsia undergo C-sections. However no there was no significant difference between the two groups. (Mudokwenuy-Rawdon et al. 2003, 46-51.)

Care rendered for controls and cases were in such context of positive and negative, a yes or no style. Areas that were analyzed were: antenatal care (booked or unbooked) and emergency care (monitoring BP, temperature,

respiration, pulse, antihypertensive/ anticonvulsant drug treatment, fluid intake and output recording, follow-up care, type of care and type of documentation. The analysis showed that being booked had no bearing on whether a woman lived or did not (13/21 cases booked). Emergency care was received by 17/21 cases and 23/42 controls. These findings are paradoxical, suggesting women who received emergency care were more likely to die. The results are possibly due to the fact that better records were kept for a dying or dead patient with the expectation of an audit. Follow-up care (15/21 cases and 12/42 controls) suggests that women who received follow-up care had less chances of living that those who did not receive follow-up care. However, controls receiving follow-up care may not have been as well kept as the cases. (Mudokwenuy-Rawdon et al. 2003, 48-51.)

Overall, Mudokwenuy-Rawdon et al. (2003, 53-55) was able to conclude that more care was taken of women's records who passed or who were more ill, than those who survived or had a greater chance of surviving. These results were thought to be due to the potential audit of maternal deaths. More information is needed in order to potentially apply these findings to a greater population. (Mudokwenuy-Rawdon et al. 2003, 48-55.)

Response

Fawcus et al. (2005, 1261-1263) points out there are many limitations to their study. Unfortunately in an audit, the records of care may or may not have been accurate, even though data collection methods remained the same over the 50-year period. During the audit, in 1983, there was an increase in the area served by PMNS. Also, Fawcus et al. (2005, 1262) mentions the 'denominator effect', suggesting that the MMR may have been exaggerated as more low-risk women were giving birth in a health care facility in 1981-1983 as compared to in 1954-1956.

The research done by Turnbull et al. (2011) has a few limitations and leading one to question the reliability of the findings. Though the population surveyed was large, the collection method was verbally given from the families who lost a child. The verbal autopsy assessment was only based upon what the families

mentioned or believed to be contributing factors. Therefore, the three pediatricians assigning the cause and factors of death could only go upon the information given to them by the surveyors. Families may or may not have been able to present all contributing factors, due to their level of knowledge and socio-economic background, and may not have understood information given to them at the time of the child's death. In addition, many women gave birth at home without an attendant or just a nurse/mid-wife. Therefore, causes of death cannot be obtained. In such communities where the survey took place, religious groups with specific beliefs may not have contributed accurate information regarding the events surrounding the child's death. This article is the perfect example of specifically pinpointing deaths to preeclampsia. Like mentioned in the article, there was no accuracy with the information they received from the families that were surveyed. The doctors' contributing factors could only be as good as the information received. No neonatal deaths were directly linked to preeclampsia. However, a common side effect of PE is prematurity. Therefore, one would be able to argue that some of the neonatal deaths due to prematurity could be linked to preeclampsia. Despite the previously mentioned limitations, and the lack of autopsy availability, this research calls for investigations into childhood mortality and the promotions of public health programs.

In Muduokwenuy-Rawdon et al. (2003) the limitation for this research was the fact that the data was collected from only one hospital and the results cannot be generalized. Unfortunately, the records kept by the hospital, for both the cases and controls, were not unilaterally equal. Therefore, findings based on the data may be distorted since the records were not complete for all women. As Muduokwenuy-Rawdon et al. (2003, 54) suggests, more information could have been obtained through observing and comparing care rendered. Overall more research is needed because paradoxical results are possibly due to incomplete records of cases and controls.

In regards to MMRs and MMRates, one needs to keep in mind that these numbers are only estimates. Many women give birth in a village or outside of a medical facility, and not all of those deaths are recorded. In developing areas,

such as in the SSA, local hospitals lack the resources to provide a diagnosis for conditions such as PE. With more estimates, comes more reliability as to the global burden of hypertensive disorders of pregnant women.

2.3 Women's knowledge about preeclampsia

East et al. (2011,1) carried out surveys on women's experiences of preeclampsia and the results were 68 women (61% response rate) and 64 (57%) partners, close relatives or friends. Respondents experiencing preeclampsia (n=53), eclampsia (n=5) and HELLP syndrome (n=26). In the surveys, 77% women reported lacking knowledge of preeclampsia preceding diagnosis, and after diagnosis, 50% did not appreciate the seriousness of their condition. Access to knowledge about preeclampsia was very important to women, their partners, relatives or friends (East et al. 2011, 1-4). It was stated that, although numerous sites can now be accessed with a simple online search, the quality and readability of information needs to be appropriate for women with varying levels of health literacy (East et al. 2011, 5).

Oyira et al. (2009, 1) carried out a study to find out the knowledge, attitude and preventive practices towards preeclampsia among pregnant women. The research was based on pregnant women's knowledge and their attitude about preeclampsia. The population involved 200 pregnant women and a sample of 100 pregnant women was used for the study. (Oyira et al. 2009, 1.) Calder and Dunlop (1993, 33) had found that maternal deaths could be prevented if women were able to have adequate knowledge and positive attitude towards attending antenatal clinics while living local practices of juju (see Oyira et al. 2009, 1).

Souza et al. (2007, 1) conducted a qualitative study using focus group techniques involving 28 women to analyze their maternal experience of preeclampsia in pregnancy. The results of the study showed that there was lack of knowledge with regard to preeclampsia and its association with premature births (Souza et al. 2007, 1). Quality of information provided to the women about pregnancy with preeclampsia during prenatal care was inadequate or not appropriate to their level of understanding (Souza et al. 2007, 5).

Included studies recruited a total of 240 pregnant women with PE. All women recruited were based on their knowledge about PE. A descriptive study by Oyira et al. (2009) indicated that maternal mortality was to due inadequate knowledge by pregnant women about PE. In a cohort study carried out by East et al. (2011, 2) showed that out of 112 pregnant women recruited for the study, 77% had no knowledge of PE prior to diagnosis. Once diagnosed 50% of women did not appreciate how serious PE was because of lack of sufficient knowledge on the disorder. In the study, women wanted to access to information about PE. (East et al. 2011, 4.) See Table 5.

Table 5. Pregnant Women's Knowledge (Souza et al. 2007,3 ; Oyira et al. 2009,3-4 ; East et al. 2011,3-4).

	East et al. (2011) (n=112)	Oyira et al. (2009) (n=100)	Souza et al. (2007) (n=28)
Women with no knowledge about PE	77%	36%	71%
Women who attended prenatal clinic	-	80%	60%
Preterm birth due to PE	85%	-	57%
Perinatal death due to PE	26.5%	-	86%

Souza et al. (2007, 2-6) conducted a study using focus group which involved 28 pregnant women. Pregnant women included in the study had PE during pregnancy and preterm delivery. The study showed that the subject's had lack of knowledge about PE and its association with premature births. In the study, 20 women (71%) said they were not aware of PE during prenatal care. They were aware only after hospitalization and preterm delivery. (Souza et al. 2007, 2-6.)

Response

It was observed that the populations used in the studies regarding women's knowledge about PE were too small to make any larger generalizations. However, their findings were clear that women lacked adequate knowledge about PE. In East et al. (2011, 1) the sample size was 112 people who had experienced PE, belonging to the consumer group of Australian Action on Pre-Eclampsia (AAPE). Though the sample size was small, a staggering number of women (77%) had no previous knowledge of PE. Half (50%) of the women after diagnosis did not appreciate the seriousness of their condition, thus they did not seek preventive measures. The women belonging to AAPE may not represent all women experiencing PE. For this reason more research with a larger sample size is needed.

In Oyira et al. (2009) the sample size was 100 women who had experienced PE in a general hospital- Calabar, Cross River State, Nigeria. The research questions were clearly defined: the level of pregnant women's knowledge, and their attitude and beliefs about PIH. The questions were clearly answered thus providing recommendations for further intensive education for pregnant women regarding PIH. It also opens way for more research to confirm their findings. All Health personnel should be equipped and ready to provide information about PIH to pregnant women visiting prenatal clinics. Moreover, the concern for significant number of maternal deaths associated with PIH is prominent on global health agendas.

Both East et al. (2011, 1-6) and Souza et al. (2007, 5) noted that the quality of information given to pregnant women with PE during prenatal care was not to their level of understanding so as to take preventative measures. Souza et al. (2007, 6) suggests that early diagnostic measures were essential for pregnant women who are at risk of PE. This was clearly shown in the study they carried out using focus group techniques involving 28 women in a facility specialized in high-risk pregnancies in Brazil. Communication flaws between the health professionals and the pregnant women experiencing PE were noted, and this may have contributed to insufficient knowledge the women received.

3 PURPOSE & AIMS

The task of this project is to create a webpage in Terveysnetti. The aim of the project is to increase knowledge about preeclampsia to the selected population.

4 METHODS

A webpage is a document connected to the World Wide Web. It can be viewed by people who have a web browser and are connected to the internet. A webpage consists of a Hypertext Markup Language (HTML) file and any related files for scripts and graphics, and often hyperlinked to other documents on the Web. People search webpages on the internet for varying types of information. Recently, there has been an increase in numbers of online resources that offer health-related information and people are increasingly using the web for consumer health research. It is suggested that people searching for information on webpages via online means, view internet as a kind “human intermediary” that replaces the role used to be occupied by the librarians and other search mediators. (Chern Li Liew 2011, 621.)

Apart from advice and health-related information, people also use webpages to be better informed, better prepared when meeting with the doctor, or for searching for support, alternative answers or reassurance. Time limitation in the consulting room between the doctor and the patient has led to more usage of online resources. (Sillence et al. 2006, 698.) According to Klein & Wilson (2003) Websites are more appealing to people who seek advice on important but sensitive matters (see Sillence et al. 2006, 698). Most people using webpages, who posted online for health advice, believe that it will enable them better deal with their health. However, assessing the quality of online information is an alarming task. (Silence et al. 2006, 698.)

In the technology-based world one is able to research most anything online. According to Fox & Fallows (2003) reports show that 80% of adult internet users have gone online of general health information (see Silence et al. 2006, 698). Silence et al. (2006, 699) identified different trust factors, and the process in which a person analyses the source in which they are looking to for information.

Eysenback et al. (2003) indicates that when it comes to assessing the quality of a website, the criteria includes accuracy, completeness and readability (see Silence et al. 2006, 698-699). ‘Accuracy referred to the degree of concordance

of the information provided with the best evidence or with generally accepted medical practice. Completeness was calculated as the proportion of a priori-defined elements covered by the website. Readability formulas were also used to establish the reading level of a document.' (See Silence et al. 2006, 698.)

Silence et al. (2006, 699) has also defined various factors in which most likely govern how individuals feel about the trustworthiness of a website. First is the look and feel of the site. The sites that rated high were ones with visual appeal, and the sites that were mistrusted were ones with poor visual design. Second, the branding of the site e.g. trusted or familiar logos influenced individuals. Thirdly, individuals were influenced by the perceived quality of the website. Lastly, individuals were influenced by the personalization of the website, and if it directly pertains to them. (Silence et al. 2006, 699-700.)

A model of trust has been created (see Figure 3.). There are three stages in the framework of trust: heuristic analysis, content evaluation and longer term engagement. Heuristic analysis refers to the look and feel of the site and the fundamental design. The following are included in heuristic analysis. Visual appeal: refers to the balance between text and graphics, in relation to the time it takes to load the site. Layout/ navigation: is vital when making a first impression. A site should have simple menu bars making it easy to quickly start navigating. Social identity: includes the use of appropriate graphics, mission statements and language pertaining to them. Adverts: carefully should be carefully used. Too many can be distracting, but they also convey the extent at which the site is commercialized. Branding: provokes the user with a sense of familiarity. This includes colour, name and logo. (Silence et al. 2006, 701-702.)

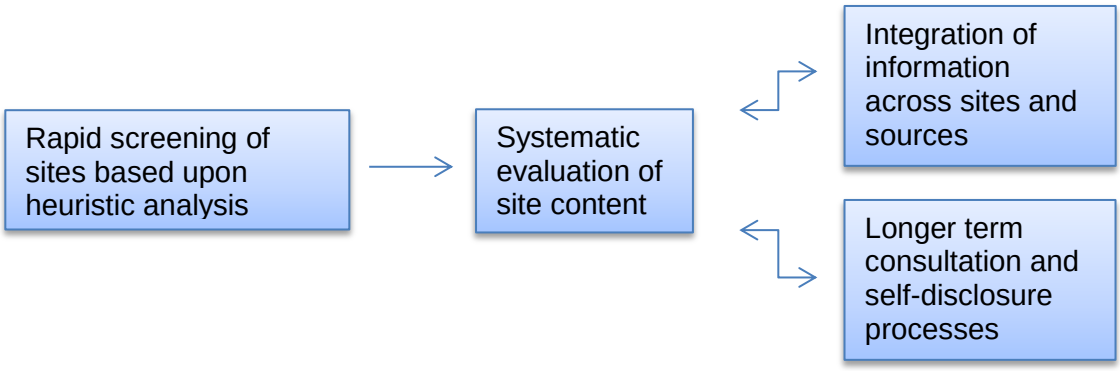


Figure 3. Staged Model of Trust (Silence et al. 2006, 701).

Systematic evaluation of the site content refers to more detailed and in-depth compared to the first stage. Language style and tone: websites with lots of medical terms can be difficult to read and understand for users who may have a newly diagnosis. However, for some users, medical terminology is completely appropriate. Site purpose: what the site is for. Content level: should be aimed towards the intended reader. Variation in depth should be considered, from a beginners search to a more in-depth knowledge. Source knowledge: the author's knowledge or expertise is that of a medical professional or patient. Cross-referencing refers to the links made available to other websites. This allows the user to do more research and promotes a sense of openness. (Silence et al. 2006, 702-703.)

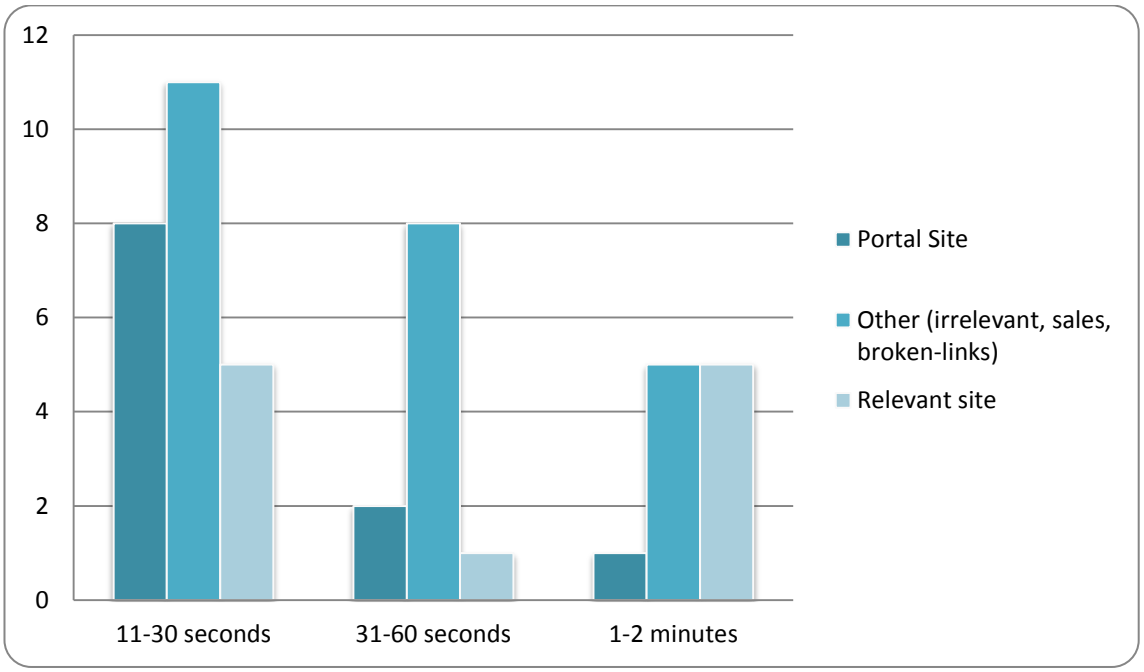
Longer-term engagement refers to the long-term use the. Personalized content: content in which can be personalized, usually in the form of registration or creating a profile. Interactivity: the site engages the user. This can be done by quizzes, tools, emails and text updates. Updated content: Keep the users coming back for more information to keep updated. This aspect ensures that the user will look to the website in longer-term for consultation. User-generated content: helps to ensure longer-term engagement by allowing the users to contribute to the content on the website. (Silence et al. 2006, 703-705.)

In another study conducted by Silence et al. (2007, 1853-1856), time spent on different websites and the factors which contributed to each site were roughly

determined. In the first two minutes users sift through sites very quickly. (See Chart 1.) Factors which contributed to the rejection or mistrust of a website were design factors: inappropriate name for the website, complex/ busty layout, lack of navigation aids, boring web design especially use of colour, pop up adverts, slow introductions to site, small print, too much text, corporate look and feel, poor search facilities, and content factors: irrelevant material and inappropriate material. Factors which contributed to the selection and trust of a site were design factors: clear layout, good navigation aids, interactive features e.g. assessment tools; and content factors: informative content, relevant illustrations, wide variety of topics covered, unbiased information, age specific information, clear simple language used, discussion groups and frequently asked questions section. (Silence et al. 2007, 1853-1858.)

HON Code (Health On the Net) is a code of conduct for medical and nursing information that is published on the internet. The HON Code includes 8 principles: Authorities, the qualifications of the authors; Complementarity, should enhance but not replace the doctor-patient relationship; Privacy, protects any personal information about the user; Attribution, sourcing all sites with dates and authors; Justifiability, justifies the sites benefits and performance; Transparency, allows the user accessibility and the correct contact information; Financial Disclosure, discloses any financial backing; and Advertising Policy, distinguishes the difference between the views of the site and ad content. All 8 of these areas go to the trustworthiness of a website. (HON Code 1997).

Chart 1. Time Spent on Websites (Silence et al. 2007, 1857).



5 IMPLICATION OF PROJECT

The topic of this thesis was chosen for personal reasons, because both authors have experienced the effects of preeclampsia. As sources have stated, PE is a manageable condition if women have adequate knowledge about the disorder (Lloyd 2009, 402-403). With this information, and the WHO's findings that thousands of women and infants are effected by PE, makes this a relevant topic. It also indicates more attention should be alerted to this global problem.

Articles were searched and retrieved from reputable sources and databases like EBSCO (Cihahl), Medline/Pubmed Central, Medwell journals. The search terms included preeclampsia, pre-eclapsia, toxemia, gestational hypertension, pregnant women, gravidity, risk pregnancy, knowledge, education, awareness, experience, attitude. The search strategy yielded text articles which were relevant to our research questions were included. Titles and abstracts which were irrelevant or with no further reading were excluded. Inclusion criteria were pregnant women, all stages of preeclampsia, gestational hypertension, treatment history, studies written in English language, study type which included literature reviews, policy documents and book reviews. Exclusion criteria were studies focusing only on hypertension, eclampsia, HELLP syndrome, and studies not written in English language. Data was independently extracted from the included studies.

Literature reviews were used in this study to focus on the research topic and make critical analysis between different existing reviews that are related to our study. Individually we searched previous literature focusing on research questions. We peer reviewed the literature researches. Peer review helped to increase the validity of included articles (Polit et al, 2001, 305; Booth et al. 2004, 105.)

The commissioning of this project was from Aluesairaala, Salo city. See Appendix 1 and Appendix 2.

Creation of the webpages was done in two sections: content and design. The content depth was based upon the targeted population and providing the basic

knowledge to the women experiencing PE. Contents were collected from different sources and complied to create a working webpage. Language used in the webpages was English, and terms were simple and understandable. All scientific terms were place in parenthesis. See Appendix 4.

Layout was based upon Silence et al. (2006, 701-702) research identifying easy navigation as a factor affecting user in their decision to consult the webpage or move on to another. The headings are divided into 8 headings with subheadings once clicked on. Of the 8 headings, one is frequently asked questions. This is another factor that increases the trustworthiness of the webpage (Silence et al. 2006, 703-705).

The colour purple was chosen for aesthetic reasons, feminine appeal, and it was used to contrast main headings and subheadings. Text font is Arial Narrow size 17/ 18. The font was chosen as it is a basic font and is readable on all devices. It will not be distorted, and the font size is easy to read. Pictures were purchased from istockphoto.com. See Appendix 3.

6 DISCUSSION

The underlying theme of our thesis was that women are dying from a manageable pregnancy complication that could be prevented if they had adequate knowledge to take preventative measures. These webpages will be used to provide the basic knowledge about preeclampsia to pregnant women and/or their spouses, relatives and close friends. As stated before, many people search webpages on the internet for varying types of information, and 80% of adult internet users have gone online for general health information (Silence et al. 2006, 698.) It was thought that the population affected by preeclampsia especially newly diagnosed pregnant women, would access this information online and help them to take preventive measures against the disorder. Preeclampsia can only be managed when the affected women are able to access to the trusted health information posted online. The language used in the webpages was simple and understandable English to convey information about preeclampsia to the user's level of understanding. Any scientific term used, an explanation was given in brackets for easy understanding.

The reason for using the webpages in this thesis was to reach out to as many women affected with preeclampsia as possible. Informative materials were gathered from different reliable sources to create the webpages. However, the information provided in the webpages should be used by the targeted population for support and to be better informed when meeting with their physician. It should not replace the patient-physician role as seen in the Hon code principles. The webpages were presented to the commissioner at Neovula. The nurses liked the ease of the webpage and found the content to appropriate for the intended population. They suggested that under the FAQ section that the question 'Why do I have to give so many urine samples and blood pressure readings?' The suggested question has since been added to the webpage. In addition the nurses suggested that these webpages be updated as they will be used quite frequently.

The webpages address the 8 principles of the HON Code. Authoritative: there is an Authors page, addressing the qualifications of the authors. Complementarity:

these pages prepare the patient for further meeting with their doctor and enhance the doctor-patient relationship. Privacy: user's information is not used on the webpages. Attribution: all sites have been sourced on the references page. Justifiability: users are able to act accordingly in regards to PE from the knowledge they received from the webpages. Transparency: no direct contact information has been provided; only advice to contact your local neovula. Financial disclosure: commissioning of the webpages has been addressed under Authors. Advertising: there are no adverts on the webpages.

The overall reliability of our thesis can be justified. In the project plan, inclusion and exclusion criteria's were clearly defined. Multiple databases were searched for articles which made the search more extensive. However, there is a possibility some articles dealing with the topic could not be identified during the search. Since the search was limited to English language articles and journals, other useful articles dealing with the topic in other languages could not be captured. After researching the topic more, some overall topics needed to be re-included: hypertensive disorders/ eclampsia. Unfortunately in many of the statistics and researches, preeclampsia was lumped in with hypertensive disorders overall and/or with eclampsia. Each of the articles was peer reviewed for quality as was each portion of the thesis.

Further Direction

Many studies have been done regarding the prevalence of preeclampsia, the affect it has on maternal deaths and pregnant women's knowledge about preeclampsia. There is still a big question mark remaining about the disorder. Future research should be done to expand the understanding on what pregnant women should know about PE, their level of understanding and aim to reduce the prevalence of the disorder that is associated with high maternal deaths. Finally, there is an urgent need for a study that involves large number of pregnant women experiencing preeclampsia to test their knowledge and level of understanding about the disorder. This will help to guide prevention education of preeclampsia which is associated with a high rate of maternal deaths.

The United Nations have created Millennium Development Goals with a target year of 2015. These goals included are divided into two areas: reduction of the MMR by three quarters and to achieve universal access to reproductive health. The reduction of the MMR will be achieved by the reduction of maternal deaths, since many can be avoided. It will focus mainly on Southern Asia, SSA, areas that are known to carry a higher risk, since women often give birth without a skilled attendant. Lastly the gap between rural-urban care during pregnancy and childbirth will hopefully be reduced. The second area will be achieved by more women receiving antenatal care and other reproductive health measures that are lacking in developing areas. (UN MDG 2010.)

7 CONCLUSION

Preeclampsia remains as a continuing problem worldwide (WHO 2007, 17-18). This is partly due to lack of adequate knowledge pregnant women have about the disorder (Oyira et al. 2009, 1.) Prioritization of universal patient education regarding preeclampsia is essential to prevent this disorder that continues to cause a high rate of maternal deaths globally (Souza et al. 2007, 1-6). Women who have had direct experience with preeclampsia should be mobilized to help educate the broader population about this disorder. Results from researches regarding direct experience with preeclampsia should help guide the furthering of education about this disorder. Two strategies need to be implanted. The first is to increase women's awareness regarding preeclampsia. The second is to create an educated woman who can take responsibilities of her own health upon noticing signs and symptoms, so that she can seek preventive measures. The creation of webpages about preeclampsia will help to expand educative resources available to a larger population.

Communication flaws between health professionals and pregnant women at risk of preeclampsia should be cleared. Health professionals should be updated with current information on preeclampsia so as to pass it to women at risk of PE. The information given to pregnant women should be to their level of understanding. Lastly, the information summarized here is available, in the form of webpages, to women and health care personnel to enable them to make more informed decisions about care when it comes to high risk pregnancy.

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8

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Asiakkaan ohjaus/Terveysnetti	Exercising during pregnancy	Riina Rosama ja Marjo Tervo	SNUS09
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Asiakkaan ohjaus/ Hoitonetti	Nursing advocacy	Graham Kibble	SNUS09
Asiakkaan ohjaus/ Hoitonetti	Sairaanhoitajan osaaminen elvytystilanteissa ja osaamisen kehittäminen - Hoitonetti	Paula Rintala	ASSHK08
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Päiväys ja allekirjoitukset:

6.10.2011
Päiväys

Sirpa Ukkonen
AMK:n edustaja/opinnäytetyön ohjaaja

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OPINNÄYTETYÖN TOIMEKSIANTOSOPIMUS

OPINNÄYTETYÖN SOPIMUSEHDOT

OHJAUS JA VASTUUT

Vastuu opinnäytetyön tekemisestä ja tuloksista on opiskelijalla. Turun ammattikorkeakoulu vastaa opinnäytetyön ohjauksesta. Toimeksiantaja sitoutuu antamaan opiskelijan käyttöön kaikki opinnäytetyön tekemisessä tarvittavat tiedot ja aineistot sekä ohjaamaan opinnäytetyötä toimeksiantajaorganisaation näkökulmasta.

OIKEUDET

Opinnäytetyön tekijänoikeus kuuluu tekijälle eli opiskelijalle. Tekijänoikeuden lisäksi myös muiden immateriaalioikeuksien osalta noudatetaan kulloinkin voimassa olevaa kyseessä olevaa oikeutta koskevaa lainsäädäntöä.

TULOSTEN JULKISTAMINEN JA LUOTTAMUKSELLISUUS

Opinnäytetyöstä laaditaan Turun ammattikorkeakoulun ohjeen mukainen kirjallinen raportti. Kirjallinen raportti luovutetaan toimeksiantajalle ja asetetaan kirjaston kokoelmiin tai julkaistaan elektronisessa muodossa verkkokirjastossa.

Julkaistava opinnäytetyöraportti on laadittava niin, ettei se sisällä liike- tai ammattisalaisuuksia tai muita julkisuuslaissa (laki viranomaisten toiminnan julkisuudesta) salassa pidettäväksi määrättyjä tietoja, vaan ne jätetään työn tausta-aineistoon. Opinnäytetyön arvioinnissa otetaan huomioon sekä julkaistava että salassa pidettävä osa.

Opinnäytetyön toimeksiantaja ja opiskelija sitoutuvat pitämään salassa kaikki opinnäytetyön tekemisessä ja sitä edeltävissä tai sen jälkeisissä neuvotteluissa esiin tulevat luottamukselliset tiedot ja asiakirjat.

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6 / 10 20 11

Opiskelija

12 / 10 20 11

Seija Hyvärinen
Hallintoylihoitaja
Salon terveyskeskus

Toimeksiantaja

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Purchased Items

Items	Quantity	Item price	Total
Pay-as-you-go: 6 Credits packageName: Pay-as-you-go Credits Expire: **March 18, 2013**	1	8,25 €	8,25 €
Pay-as-you-go: 26 Credits packageName: Pay-as-you-go Credits Expire: **March 18, 2013**	1	34,00 €	34,00 €
Order subtotal			42,25 €
Shipping			0,00 €
Tax(23.0%)			9,72 €
Total			51,97 €

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Preeclampsia

Home Reference Authors Terveysnetti

Preeclampsia

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Preeclampsia

Preeclampsia (PE) is a serious, yet manageable, pregnancy complication affecting many systems of the body. PE is hypertension associated with **proteinuria** (excess protein). Preeclampsia occrus after the 20th week of gestation and may occur post-partum . The causes of preeclampsia remains unknown despite many reasearches on the disorder.

Preeclampsia

- PE affects about 6-8% of pregnant women around the world and is one of the known leading causes of premature birth.
- PE is the leading cause of maternal and infant illness and death globally.
- Estimates suggest that 76,000 women and 500, 000 babies die annually worldwide due to PE.

Preeclampsia

Complications from PE can be serious and life threatening. These complications can be divided into complications affecting the mother and baby.

Preeclampsia

Severe PE may lead to

- HELLP syndrome and/or eclampsia
  - Hemolysis; Elevated Liver enzymes; Low Platelet
- Risk for hemorrhage
  - During and after birth
- PE can affect the heart, brain, liver, kidneys and eyes.
- Stroke
- Death

Preeclampsia

Severe PE may lead to

- Preterm birth
  - < 37 weeks gestation
- Low gestational birth weight
- Placental abruption
  - Seperation of placenta from the uterus
- Stillbirth
  - death of the fetus in the uterus
- Respiratory distress syndrome
- Growth retardation

Preeclampsia

Risk factors for PE can be classified into two sections: modifiable and non-modifiable. Modifiable risks are ones that you can change. Non-modifiable risks are those that you can't change.

Preeclampsia

Modifiable

- Age
  - pregnancies under the age of 20 and over the age of 35 have a greater risk
- Time between pregnancies
  - prolonged interval between pregnancies increases risk

Preeclampsia

Risk Pregnancy | **Risk Factors** | Signs & Symptoms | Diagnosis | Treatment | Healthy Living | FAQ | Links

Modifable | **Non-modifiable**

Non-modifiable

- Previous history
  - Personal or family history of PE
- Multiple pregnancies
  - Expecting twins or more
- Pre-existing medical conditions e.g.
  - chronic high blood pressure, renal disease, insulin-dependent diabetes ,obesity
- Racial group
  - studies have shown that black races have a higher risk of PE than compared to other races

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Preeclampsia

Risk Pregnancy | Risk Factors | **Signs & Symptoms** | Diagnosis | Treatment | Healthy Living | FAQ | Links

Signs | Symptoms

Preeclampsia is considered 'silent' since the signs of preeclampsia can go undetected if one doesn't attend regular check-ups. Below are the physiological signs of PE.

- High blood pressure (**hypertension**): reading higher than **140/90** mm Hg, or a substantial increase in systolic, diastolic or both blood pressures
- Protein in urine (**proteinuria**): urine protein excretion over 300 mg in 24 hrs

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Preeclampsia

Risk Pregnancy | Risk Factors | **Signs & Symptoms** | Diagnosis | Treatment | Healthy Living | FAQ | Links

Signs | **Symptoms**

Symptoms for preeclampsia vary from person to person. Below are the most common symptoms

- Sudden excessive weight gain: over **0.9** kg a week
- Excessive swelling (**edema**):ankles, hands and face especially around the eyes
- Persistent severe headaches
- Change in vision
  - Dizziness, blurred vision, temporary loss of vision and sensitivity to light
- Upper abdominal pain
  - Under the ribs on the right side, accompanied with nausea

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Preeclampsia

Diagnosis of preeclampsia is based upon clinical findings during routine prenatal visits. Patients diagnosed with PE have a blood pressure reading of 140/90 mm Hg or higher and proteinuria from a urine sample.

Hypertension and proteinuria can occur alone without the diagnosis of preeclampsia. It is when these two findings are together that preeclampsia is diagnosed.

Preeclampsia

The only cure for preeclampsia is delivery of the baby and placenta. Your OB/GYN may prescribe antihypertensives or corticosteroids to control the hypertension in order to prevent further complications.

Preeclampsia

Risk Pregnancy | Risk Factors | Signs & Symptoms | Diagnosis | Treatment | **Healthy Living** | FAQ | Links

Diet | Exercise

Eating a nutrious and balanced diet during pregnancy will help reduce chances of getting preeclampsia. Pregnant women should avoid a diet high in sugar and salt.

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Preeclampsia

Regular exercise is an important aspect of a healthy pregnancy. Exercise should be done at all stages of pregnancy. Doing so will not only decrease your chances of pregnancy complications, but it will also ease the birthing process.

Preeclampsia

What is preeclampsia?
How will it affect me and my baby?
How will I know if I have preeclampsia?
What should I do when I have preeclampsia?
What should I ask from my health care provider ?

Preeclampsia

What is preeclampsia?

Preeclampsia is a hypertensive disorder characterized by hypertension and proteinuria. Hypertension is based on two or more readings of ≥140/90 mm Hg or a significant difference compared to your normal reading. Proteinuria is excess protein excretion in the urine. It is diagnosed by a dipstick reading of 1+ or greater; or 300 mg in a 24 hour collection period.

How will it affect me and my baby?

How will I know if I have preeclampsia?

What should I do when I have preeclampsia?

What should I ask from my health care provider ?

Preeclampsia

What is preeclampsia?

How will it affect me and my baby?

Preeclampsia can affect the both you and your child. Preeclampsia can lead to more complications like HELLP or eclampsia for the mother. PE can affect the heart, brain, liver and kidneys. In some untreated cases, preeclampsia may lead to a stroke or even death. The risks for the baby include premature birth before 37 weeks gestation, low birth weight, developmental retardation, still birth and respiratory distress syndrome. In some cases the placenta may seperate from the uterus

How will I know if I have preeclampsia?

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What should I ask from my health care provider ?

Preeclampsia

What is preeclampsia?

How will it affect me and my baby?

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What should I do when I have preeclampsia?

Preeclampsia is manageable. Living with preeclampsia means you have to be more cautious and aware of your body. You should first talk with your nurse or doctor about your situation. Exercise and diet are the most important in controlling PE. You need to make sure you have a balanced diet that is full of nutrients for you and your baby. However, this diet should be low in sugars and salt.

What should I ask from my health care provider ?

Preeclampsia

What is preeclampsia?

How will it affect me and my baby?

How will I know if I have preeclampsia?

Preeclampsia is diagnosed by your GP or OB/GYN. You will have your blood pressure taken on seperate occasions more than 6 hrs apart, and a urine sample will be collected for testing. In some cases blood samples will be needed to taken to test how it has progressed. Along with the tests done in the doctors office, you might notice: excessive weight gain of 0.9 kg per week, excessive swelling (edema), persistant headaches, change in vision and upper abdominal pain. Weight gain and edema are normal in pregnancy, it is when it is excessive that may be indicative of PE

What should I do when I have preeclampsia?

What should I ask from my health care provider ?

Preeclampsia

What is preeclampsia?

How will it affect me and my baby?

How will I know if I have preeclampsia?

What should I do when I have preeclampsia?

What should I ask from my health care provider ?

Ask your doctor the right questions. Write down any questions you may have before your appointment to ensure you won't forget any while you are there. Don't be afraid to ask anything. That is their job, and this is your pregnancy, ask away. At any point during your pregnancy if you have concerns don't hesitate to call your health care provider.

Preeclampsia

Risk Pregnancy | Risk Factors | Signs & Symptoms | Diagnosis | Treatment | Healthy Living | FAQ | **Links**

The Preeclampsia Foundation
•www.preeclampsia.org
The Baby Center
•www.babycenter.com
Vau
•www.vau.fi

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