

Bachelor's thesis
Degree programme
Nursing
2010

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PREVENTION OF VESICOVAGINAL FISTULA

– a literature review and experience from Zambia



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PREVENTION OF VESICOVAGINA FISTULA

The purpose of bachelor thesis was to learn about Vesicovagina Fistula (VVF) disease, to obtain information about its' prevention measures and to find a solution on how these measures could be implemented. The aim was to find if certain measures could used by medical personal to help prevent future occurrence of this disease in pregnant women specifically in Zambia at University Teaching Hospital.

The data presented here was collected by research of existing articles and books. The research method used was qualitative comprised of systematic literature. In addition, content analysis was used in the data collection. A collection of literature from various sources was required and compared with the research findings to come up with meaningful results.

The results showed that direct prevention can occur during delivery when skilled medical personal identify women and girls at risk of VVF or through community-based programs such as social education on the prevention of this disease. It was observed that, prevention should involve alleviation of poverty and improvement in education, maternity services and health care.

Further more, it was observed that accessible emergency obstetric care is necessary to decrease the burden of obstetric fistulae in Zambia and Africa at large. It could be accomplished through increased and improved health care facilities and education of health care providers and patients.

KEYWORDS:

Vesicovagina fistula, fistula, prevention of VVF, Zambia

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LIST OF ABBREVIATIONS

VVF	Vesicovaginal fistula
UGF	Female Urogenital Fistula
UTH	University Teaching Hospital
UNFPA	United Nations Population Fund
WHO	World Health Organisation
EmONC	Emergency Obstetric Neonatal care
TBA	Traditional Birth Attendants
CHW	Community Health Workers
CBD	Community Based Distributors
SMAG	Safe Motherhood Actions Groups
CINHAL	Cumulative Index to Nursing and Allied Health Literature
SLR	Systematic Literature Review

1 INTRODUCTION

Vesicovaginal fistula (VVF) is known to be a subtype of female urogenital fistula (UGF). VVF is an abnormal fistulous tract extending between the bladder and the vagina that allows the continuous involuntary discharge of urine into the vaginal vault (Forsgren et al, 2009, 8). In addition to the medical squeals from these fistulas, they often have a profound effect on the patient's emotional well-being (Kochakarn & Pummangura 2007, 4).

It is usually caused by child birth called as an obstetric fistula, when a prolonged labor presses the unborn child tightly against the pelvis, cutting off blood flow to the Vesicovaginal wall. The affected tissue may necrotize, leaving a hole (Mohamed & Boctor 2008, 4). VVF can also result from violent rape; this injury has become common in some war zones, where rape is used as a weapon against civilian populations resulting to VVF (Yeakey et al, 2009, 8).

In developing countries, the predominant cause of VVF is prolonged obstructed labor (97%), which is associated with marked pressure necrosis, edema, tissue sloughing, and cicatrisation. The frequency of VVF is largely under reported in developing countries. The magnitude of the fistula problem worldwide is unknown but believed to be immense. (Wall & Lancet 2006, 4.) In Zambia alone, VVF rate was 350 cases per 100,00 deliveries in 2001 (UNFPA 2007, 2).

In 2002 the WHO identified the following geographic areas where obstetric fistula prevalence is high: virtually all of Africa and south Asia, the less-developed parts of Oceania, Latin America, the Middle East, remote regions of Central Asia, and isolated areas of the former Soviet Union and Soviet-dominated eastern Europe. VVFs in developing countries are attributed predominantly to inadvertent bladder injury during pelvic surgery (90%). In contrast to developing countries, countries that practice modern obstetrics have a low rate of VVF. (WHO 2005, 2.)

Less frequently, VVF may occur; (1) between the bladder and cervix or uterus; (2) between the ureter and vagina, uterus, or cervix; and (3) between the urethra and vagina. Of note, a ureteric injury is identified in association with 10-15% of VVFs. (Kochakarn & Pummangura 2007, 4.)

1.1 Zambia

VVF is problematic especially in developing countries which includes Zambia (Mkuma & Kasonka 2003, 4). Zambia is a landlocked country in south-central Africa with a population of about 11, 8 million. It has nine provinces, with 49 different languages. English is used as the national language. The capital city is Lusaka, where UTH is situated and about two third of Zambia's population live in poverty. It has a high birth and death rate particularly among women and children. Women in Zambia still face the problem of gender issues and they also lack education which leads to illiteracy and unwanted child birth (Wall et al 2004, 8).

The health care workers face problem of VVF, due to pregnant women who are unable to attend antenatal checks, forcing nurses to perform deliveries without being certain about the pregnancy condition leading to VVF. In this thesis, it was observed with interest to find out more information about the prevention methods, which can be used to treating VVF in developing country like Zambia.

During this study, it was observed that VVF knowledge is not understood by the majority of women having it, due to lack of education, poverty, illiteracy, lack of facilities and certain cultural beliefs making it difficult to create an understanding on how to prevent it. In Zambia, some cultures believe that it is a taboo to discuss such matters hence leading to fear by women to be evaluated by medical personal (Wall et al 2004, 6).

During the time of author's practical training in Zambia at University Teaching Hospital (UTH), the author had observed devastating experiences from different women suffering from pain and shame due to a disease which their do not understand. The author decided to do some research on the disease, how to prevent it and how to gain relevant information concerning the treatment of the disease. For this reason, author decided to choose this topic for the bachelor thesis. VVF and factors influencing it are described, as well as its prevention methods of SLR are explained.

The objective of this thesis was to investigate the prevention methods order to help and prevent VVF occurrence in pregnant women in Zambia.

1.2 Author`s experience in Zambia

Author being a Zambian without having experience about the systems used concerning antenatal health care, due to the absence of living in her own country. The author observed VVF disease to be a terrible and devastating problem for African women, which means Zambian women being affected by this disease are in despair. During work practice at the biggest hospital in Zambia, it was observed that VVF prevention situation was a problem, because it was very clear that educated health care personnel lacked adequate knowledge about the disease. This contributed to pregnant women undergoing labor being at risk of developing VVF and even death after giving birth.

Information about prevention VVF did not reach these pregnant women due to nurses being so busy and because they tried to treat as many women as possible for each day and make checkups at the same time. Some of these nurses treating pregnant women were not qualified for the job, but because there were not enough nurses there had help in labor procedures to help these pregnant women to give birth. Lack of facilities was a huge problem. Example due to lack of gloves, needles and extra syringes, nurses refused to attend these women undergoing labor for hygienic and aseptic reasons. Instead patients' relatives had to buy their own tools needed for the procedure and sometimes they were unable to buy them due to lack of cash. There were no instruments to check and measure whether the pelvic area for the woman giving birth was wide enough to allow normal delivery and, whether caesarean section was needed and made it difficult to estimate the situation. The lack of anesthesia to perform caesarean section is also another problem.

The author concluded that, nurses contributed to the lack of tools. Because nurses and midwives did not make sure that there were enough tools needed due to ignorance. The author also noticed that nurses were stealing some of the hospital equipment for personal use.

Illiteracy, made the situation worse, pamphlets about prevention of VVF were printed only in English language making it difficult for these illiterate women to understand how they would take part in preventing VVF. Hence these women pretended they understood what VVF prevention is, even if they did not because they felt sorry for nurses. And this is because the nurses were busy all the time and these women acknowledged it. Author noticed that none of the nurses cared to explain the VVF prevention measures to their patients in their local language; they just skipped the

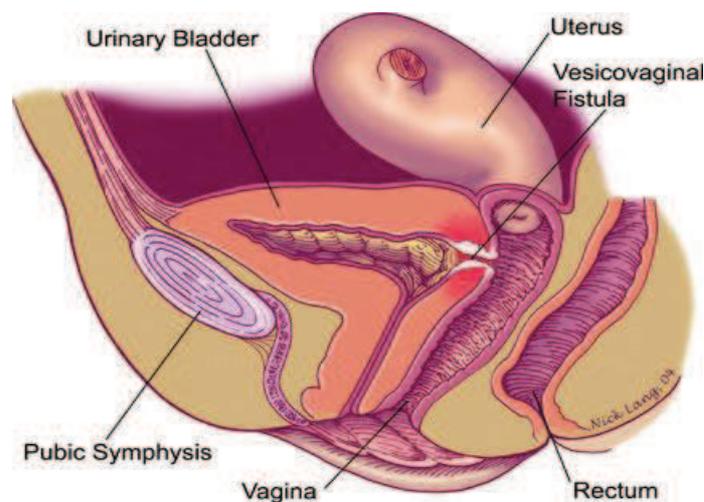
whole issue and considered themselves relieved from the burden of their condition of being busy. Beliefs and traditions contributed to VVF cases, because most of the women believed that to give birth at home was safe according to their spirits. When delivery failed at home, women undergoing labor were forced to proceed to hospital with the risk of death or developing VVF. These kinds of situations were challenging for nurses and made them furious and unwilling to attend such cases due to fear of being blamed if the unborn child or the mother would have died.

2 BACKGROUND

This chapter discusses the definition of fistula, its causes and the factors leading to this disease. The factors also include symptoms, prevention and other social economical factors resulting to VVF. The chapter further discusses the authors own experience in Zambia concerning VVF.

2.1 Epidemiology

The term fistula refers to an abnormal duct or opening that occurs as a result of injury, disease, or disorder that connects a hollow organ in the body to another (Mohamed & Boctor 2008, 4). VVF is an abnormal opening between a woman`s vagina and bladder through which her urine continually leak. It is a very unpleasant experience for the patients, and it is considered as the most dehumanizing condition that afflicts women. It is the most common type of urinary tract fistula. (Wall et al 2004, 8.) Picture (1) represents the female organ showing the area where VVF is concentrated.



Picture 1: VVF. (Referred to 28.03.2010)

It is commonly known that VVF can be caused by diseases, medical treatment or by trauma. Medical fistula is mainly cause by gallbladder complications or through radiation therapy leading to Vesicovaginal fistula. The other causes of disease fistula are due to the inflammatory bowel diseases such as ulcerate Colitis and Crohn`s disease. In Zambia, the main cause is due to obstructed labor during childbirth described as Obstetric Fistula. This occurs when a prolonged labor presses the unborn child tightly against the pelvis, cutting off blood flow to the vesicovaginal wall. Hence

the affected tissue may necrotize, leaving a hole. (Mokrzycki & Hampaton 2007, 4.) It also results from an injury to the urinary tract caused by accidents during surgery procedures to the pelvic area such as hysterectomy (Praire 2008, 2). For example, in Zambia, there are some areas where culture encourages marriage and conception at a young age, often before full pelvic growth has been achieved. Due to poverty, some women suffer from chronic malnutrition during pregnancy which further limits pelvic dimensions, increasing the risk of developing VVF. In addition, few Zambian women are attended by qualified health care professionals or barely have access to medical facilities during childbirth because they cannot afford to pay medical fee. This leads to obstructed labor protracted for days or weeks. Secondly most girls under the age of 18 years old try to do abortion at home using some homemade herbs which cause complications and necrosis to the womb. Furthermore, another cause is tumors in the VV area or by reduced bloody supply due to tissue death (necrosis) caused by radiation therapy (Murdock et al, 2005, 8.) Due to financial issues, not all Zambian women can afford antenatal checkups and lack of knowledge is also another contributing factor to these kinds of incidents (Mkuma & Kasonka 2003, 4).

Fistula can exist in two forms simple and complex fistula. Simple fistula is easily identified, it is easily treated and the vaginal tract is not significantly impaired during surgery. Figure 2 illustrates simple fistula exposing the perianal region which is below the pelvic diaphragm and the patient is operated on using simple tools (Firous Daneshgari M.D).



Figure 2 Simple fistula demonstrated by opening of the labia. (C-H Rochat, 2003.)

Complex Vesicovaginal fistula involves the vaginal or abdominal approach depending on the location and therapy. The vaginal approach is commonly used as it allows high cure rate, short recovery and it is less complicated. Figure 3 illustrates complex vesico-vaginal fistula repair using traditional treatment. The vaginal approach reduces bleeding and infections after the whole procedure.



Figure 3 complex vesico-vaginal fistula repair. (C-H Rochat, 2003.)

The Symptoms of VVF include constant urine leakage from the vagina. One may experience irritation in the area of the vulva, and frequent urinary tract infections. VVF is usually diagnosed by a medical doctor, who performs visual examination of the vagina. By injecting sterile milk or methylene blue dye through a catheter into the bladder, it can be observed whether the dye progresses through the bladder and into the vagina. Cystoscopic tests, x-rays of the bladder are done. Surgery to repair is usually known to be quite successful. When diagnosed to have a VVF, if there is urinary tract infections and vulva irritation they will be first treated. Often VVF is a closed surgically. Laparoscopy is used, incision made in the abdomen or then surgical procedure performed through the vagina. In case of tissue death, a new blood supply is introduced.

2.2 Statement of the problem

VVF is rare in developed and industrialized countries, but remains a public health problem in developing countries with poor access to health facilities. It is one of the worst morbidities associated with delivery. Although VVF diseases are preventable and

treatable conditions, untreated condition remain prevalent in developing countries. It has been estimated that 2 million girls and women live with VVF worldwide (WHO 2005, 2).

VVF affects numerous girls and women every day. The condition leaves these affected women in a state of despair. Women affected by VVF have to suffer not only the consequence of losing their children but also are subjected to social humiliation, shame and embracement. They may become outcasts due to pungent smell and wetness from urinary incontinence. (Wall et al 2004, 8.)

2.3 Factors contributing to VVF in Zambia

Numerous factors contribute to the development of VVF. Commonly, these are the areas where the culture encourages marriages and conception at a young age, often before full pelvic growth has been achieved. Other cultural factors that increase the likelihood of VVF include outlet obstruction due to female circumcision and the practice of harmful traditional medical practices such as Gishiri incision. Gishiri cut (a traditional cure consisting of surgical cut into the interior vaginal wall of the woman who has been diagnosed by a traditional healer to suffer from Gishiri disease (a wide range of conditions and symptoms , such as itching of the vulva, amenorrhea “lack of menstrual periods”, infertility, obstructed labor anemic headaches, malaria, fainting e. t. c) and the insertion of caustic substances into the vagina with intent to treat a gynecologic condition or to help the vagina to return to its nulliparous state. (Mkuma & Kasonka 2003, 4.)

Chronic malnutrition further limits pelvic dimensions, increasing the risk of malpresentation e. t. c. In addition, fewer women are attended to by qualified health care professionals or have no access to medical facilities during childbirth. In most fistula cases, delivery usually had occurred at home, was attended to by family members, unskilled birth attendants, or traditional midwives. In some occasions, the attendants delay making a referral to an emergency obstetric facility (Khan & Sultan 2005, 4).

Delay could also occur at the treatment facility itself due to lack of health workers. Many hospitals and clinics in Zambia do not have enough skilled personnel to offer prompt surgical treatment for emergency obstetric cases. Emergency care could be delayed because supplies are lacking, diagnoses are late or wrong, or actions are incorrect (UNFPA 2007, 2).

2.4 Social economic factors contributing to obstetric fistula

There are many questions about why is fistula so common in developing countries or third world countries. The answer lies in a complex interactivity of biological, social, and economic forces. Women from such countries experience wide spread obstructed labor and subsequent fistula formation which is common in young women. Furthermore, women in developing countries particularly girls in Africa, are married at a tender age. This increases the possibility of obstructed labor especially in rural areas where early marriage and childbearing are common, but also lack medical facilities. Thus, although girls are capable of becoming pregnant at a relatively early age, their pelvis does not develop their full capacity to accommodate childbearing. Most of these girls' lives are destroyed by obstetric injury as most of them have not attained full adulthood. In most cases, the average age of a fistula patient is 25 years or less, and many are as young as 13 years. VVF is common among young mothers even though this condition can be experienced by any woman who is at risk of developing for example large fetal size, malpresentation, intervening disease or malnutrition. (Mkuma & Kasonka 2003, 4.)

2.5 Prevention measures of VVF

In 2003, UNFPA and its partners launched the first ever campaign to end fistula. Its overall goal was to make the condition as rare in south as in the north. This includes the intervention to prevent fistula from occurring, to treat women who are affected and review the hopes and dreams of those who suffer from the condition thereby reducing the stigma associated with it, and helping women who have undergone treatment return to full and productive lives. (UNFPA 2007, 2.)

Although the prevention of maternal death from these causes requires skilled medical and surgical care, none of these interventions require high-technology resources. The essential elements of emergency obstetric care are intravenous fluids, antibiotics, blood transfusion, oxytocic drugs, and basic surgical services. To address this need, the United Nation Population Fund, partnered with Engender Health to conduct a groundbreaking study on the incidence of fistula in Sub-Saharan Africa and the capacity of the hospital to treat patients. A team of researchers traveled to nine countries over six months to visit public and private sector hospitals that provide fistula surgery and interview doctors, nurses, midwives and patients. Over 35 facilities in some African countries including Zambia were visited during the rapid assessment

process. Results for this nine- country study were to lay the groundwork for future action to prevent and treat fistula in the region. (WHO 2005, 2.)

The campaign launched in 2003, has already brought fistula to the attention of a wide audience, including the public, policy makers, health officials and women with fistula (UNFPA 2007, 2). The population fund has been spearheading the campaign since 2003 to promote sound reproductive health, using community groups and safe motherhood organization to raise awareness about the condition and support sufferers. In Zambia, the campaign is national wide and is being scaled up during Emergency Obstetric Neonatal care (EmONC) and Safe Motherhood Actions Groups (SMAGs). In 2007, and 2008, the Ministry of Health (MOH) and its partners introduced SMAGs in 33 districts. These are volunteers comprising of any available, active and acceptable people in the community with Traditional Birth Attendants (TBA), Community Health Workers (CHWs) and Community Based Distributors (CBD).

The main objective of SMAGs are to sensitize communities, households on key family and community practices and early recognition of danger signs during pregnancy, delivery, postpartum periods, and common neonatal and childhood illness. SMAGs also sensitize women on the importance of community maternal death reviews, causes of fistulae and what next for the victims and most important of having institutional deliveries. Community awareness of birth plans and the importance of antenatal care in the fourth trimester are important. SMAGs also organize transport and logistics for referrals. This is usually made possible by having Income Generating Activities (IGA), which helps the groups to generate money to assist pregnant women who are in need of emergency transport to health care facilities. (UNFPA 2007, 2.)

However, reliable data on obstetric are limited. The full extent of the problem has never been mapped (UNFPA 2007, 2). It is unknown exactly how many develop fistula because many women labor outside the facilities and many countries do not record cases. Fistula repairs and prevention also are difficult to secure in developing countries for several reasons. First, the cost can be a prohibiting factor. Additionally, many health centers in the most affected area, for example Zambia lack funding, trained professionals, basic equipment and surgical supplies to conduct the repair surgery. Furthermore, the expense and shortage of skilled birth attendants, and minimal access to caesarean section further complicates efforts to prevent fistula (Rous 2009, 2).

2.6 Prevention and treatment: the public-health Challenge

Basically all obstetric fistulas could be prevented by adequate intrapartum care that would detect the abnormal progression of labor and would allow timely intervention before labor became obstructed. Simple analysis of the progress of labor used by trained birth personnel reduces maternal deaths, prevents prolonged labor, and even results in a decrease in operative intervention (by allowing normal labor to proceed without unnecessary interference).

This level of basic obstetric care is absent throughout most of the developing world particularly in Africa. The provision of essential obstetric services has never been a top priority for the governments of countries where the fistula problem is most severe. The maternal health programs that do exist are often restricted to provision of rudimentary prenatal care or emphasize birth control, but family planning programs and antenatal health care programs by themselves will never have more than a marginal effect on maternal mortality. Most maternal deaths are due to unexpected complications that cannot be predicted in advance but that demand prompt intervention when they occur: hemorrhage, hypertensive crises, sepsis, complications of unsafe abortion, and obstructed labor. The international public health community has not emphasized the critical need for surgical services in the developing world, and this problem has been made worse by lack of meaningful ongoing communication between the public-health community and clinical obstetrician-gynecologists of which both are nonexistent in developing countries.

3 AIM AND RESEARCH QUESTIONS

The aim of this study is to find ways and solutions on how the VVF prevention measures found in the research can be implemented in practice by women in Zambia at UTH in order to prevent VVF occurrence:

1. How can women in Zambia at UTH prevent VVF occurrence?

4 LITERATURE REVIEW

This chapter discusses literature review and the methods of used to find solutions to research questions. The literature review focuses on knowledge and attitudes of VVF patients towards fistula prevention. Sources of reviewed literature include books, articles, policy papers, professional journals and dissertations both published and unpublished. This chapter also describes what is meant by systematic literature review, its purpose and why it is useful in health and social care evaluation.

The basic idea was to find fifteen articles dealing with different kinds of prevention measures concerning VVF and factors affecting the prevention of VVF in developing countries. Many articles explaining about VVF and its prevention measure was found in Cinhal databases. Articles found answered very well to the research questions.

Search for articles happened between December 2009 and May 2010. Articles were acquired from two databases, CINHAL and Your Journals @ Ovid. Many full text articles were found, so search from other databases was not needed. These databases were chosen, because they proved to be easy and were full-text articles with valuable benefits. Article's language was English, making it easy to make searches.

Inclusion criteria for the accepted research articles:

1. Research articles should be the ones published in scientific journal between the years 2005- 2010,
2. Databases chosen should be in English, good and proven to be full- text articles with benefits for this research and
3. Article used must be searched from CINHAL and Your Journal @ Ovid through the library web pages of the school.

Exclusion criteria

The following researches have been excluded in this thesis:

1. Research unpublished and discussing VVF out of developing countries,
2. Articles discussing VVF, but not mentioning about the prevention measures and
3. Articles discussing Rectal Vesico Fistula (RVF).

Putting together of search terms were used to obtain research articles fulfilling the inclusion and exclusion criteria, to be able to answer the research question. VVF term gave hundreds of similar hits in Cinhal and Ovid database. See table (1).

Table 1. CINHAL and Your Journals @ Ovid hits from school web library

KEYWORDS	CINHAL	OVID
Vesicovagina	210	202
Fistula	324	293
Prevention of VVF	19	16

Full text articles were chosen, after author read results from abstract hits.. Topic for literature review was prevention of VVF, search terms such as “fistula” and “vesicovagina” were searched separately, then additional words like “prevention” and “fistula”. By doing so, articles specifically discussing VVF prevention with good explanations were found with a suitable number allowing the author to be able to read through these few articles with a better understanding. See table (2).

Table 2. Explanation of abstract and full text results from CINHAL and OVID

KEYWORDS	CINHAL: Abstract read	CINHAL: Full text chosen	OVID: Abstract read	OVID: Full text chosen
Vesicovagina	8	3	6	2
Fistula	4	2	7	3
Prevention of VVF	3	2	4	2

The author then chose articles only with full text and read them through carefully. These were chosen, because they were well illustrated professionally and explained prevention measures that can help stop VVF disease in developing countries. These full texts brought the number to fourteen. Finally five research articles were chosen to

do research for the thesis, because they filed the inclusion and exclusion criteria. See table (3).

Table 3. Explanation for full text found and chosen articles

KEYWORDS	CINHAL: Full text chosen	OVID: Full text chosen	Chosen Articles for thesis
Vesicovagina	3	2	1
Fistula	2	3	2
Prevention of VVF	2	2	2

Table 4. VVF distribution between urban and rural areas in Zambia

Baseline data	Age Range	Urban areas	Rural areas
Old cases	13-60	30%	more than 70%
Treated	13-60	~60%	~10%
Untreated	13-60	~30%	~85%
Traditional means	13-60	less than 10%	more than 70%

A bimodal distribution of fistulas has often been reported, with the highest peak in primigravid women and another peak among women who have had four or more pregnancies. Probably the most important factors contributing to the high incidence and prevalence of obstetric VVF in Africa, however, are socioeconomic factor. Table 5 illustrates the percentage composition of VVF infection in women particular in developing countries.

Table 5. illustrates the number of patients depending on the type of fistula

Fistula type	percent infection	Patients/week
Vaginal	75%	7 to 10
Abdominal	14%	3 to 5
Combined	4%	~ 3
Other	7%	

Table 4 shows the characteristic distribution of fistula and the best possible place in case a patient needs treatment. The table shows that more patients are treated in urban areas as compared to rural areas and this reason for this is explained through the chapters and in the conclusion. Table 5 illustrates the fistula percentage distribution in Zambia. The table clearly shows that fistula of the vaginal is the more wide spread in women in than as compared to other case.

Systematic literature review is a summary research that uses explicit methods to perform a thorough literature search and critical appraisal of individual studies to identify the valid and applicable evidence, and it is also an independent study. The purpose is to gather information about particular topic based on already existing research articles. It provides a summary of the already existing material written from a particular topic. An important point in systematic literature review is that the process of finding and choosing the research articles is well described. Individuals reading the review have to be able to repeat the search with the instructions of the initial author of the review whenever they wish to. (Polit & Hungler 2001, 4.) Hence, it is important to come up with a clear research strategy on how to proceed with the systematic literature review once it has started.

The purpose of systematic literature review is to answer the research question. Inclusion and exclusion criteria are made to limit the number of research articles which are chosen to be used in the review (Reider 2007, 2). Reliability had to be considered as well in every step, because it brought the author closer to finding an answer for the research question. Review ought to be written well otherwise it has no use (Taylor et al, 2006, 8). All the needed and reliable sources of information must be read through when searching for good articles and as a researcher one must not pick those articles which

please them. All the research articles fulfilling the inclusion criteria should be taken as a part of the review, otherwise the exclusion has to be explained. The time processes of doing the systematic literature review can be long even tiring. Sharing ideas about the topic with different people can provide many useful points of view for the review to become better. (Polit & Hungler 2001, 4.)

Nowadays, systematic literature reviews have turned out to be a good source of information within health and social care. Individuals working in such fields must know the new researches, which has done related to their work, so reading many different articles takes a lot of time and confusing. For this reason a well-written systemic review gives a better understanding to the reader and so helps to see the complete picture concerning the reviewed topic (Taylor et al 2006, 8).

Thorough evaluation of various research articles from different sources was conducted to make this study more reliable. The author expects this literature review to increase a dialog in health institutions and to increase awareness in women about the prevention measures and how to implement it into practice by women especially in developing countries. The strategy is that this information should reach as many people as possible and reduce the risk of suffering from this disease. Hopefully this research is able to assist VVF patients with information and VVF prevention measures. This is a qualitative study conducted with a method of systematic literature review (SLR) and within this review are few articles discussing VVF prevention measures.

5 RESULTS AND DATA ANALYSIS

This chapter discusses the results found from the literature review with the knowledge presented in the background and also with authors experiences in Zambia about ideas on how prevention can be affectingly be implemented. The five articles accepted for the literature review discussed from different point of views. Two exceptions ought to be explained and were made to fulfill the inclusion criteria and for the review to be professional.

5.1 Data analysis

Several authors have written on many aspects of VVF prevention. These studies were conducted in developing countries other than Zambia (Canadian Medical Association Journal 2008, 2). However these studies have all the answers, but these methods are not at all used in Zambia. Therefore, this review is aimed at establishing what is already known about the topic, to identify gaps in the existing literature and to find ways of how these prevention measures of VVF can be put in to practice, so it will reduce the occurrence (WHO 2005, 2).

The study answers the author's research question well and brought valuable point of view to this literature review which was a good advantage. With the inclusion criteria; the articles accepted for the research have to be relatively new. The oldest article was published in the year 2005 and the latest was published in the year 2009.

Table 6. Number of research articles and years of publication

Year of publication	2005	2006	2008	2009
Number of researches	2	1	1	1

To list the places where the studies have been conducted and also what the samples were, see table (7) on page 25 and 26 illustrates these points in short. It also discusses briefly about the purpose and results of the study.

Table 7. Explanation of chosen articles for LR

Author and Year of publication	Sample and place of research	Main objectives of the research	Main results of the research
Miller S, Lester F and Webster M. 2005.	<u>Obstetric fistula: a preventable tragedy.</u> Women and girls. Sub-Saharan Africa and South Asia.	Launching of a global campaign to end fistula by labeling this condition a preventable and treatable tragedy.	Direct prevention of fistula can occur during delivery when skilled providers identify women and girls at risk for obstetric fistula and link them with innovative interventions. Community-based programs can be used for social education to prevent fistula and midwives can play a key role in the prevention and treatment of this tragic obstetric complication.
Ramphal S and Moodley J.2006	<u>Vesicovaginal fistula: obstetric causes.</u> Women.	To determine the impact of obstetric fistula on the lives of women in poor countries, address this problem to find solutions and discuss it.	Expert surgeons and optimal databases with personnel to do research will benefit patients. Prevention should involve alleviation of poverty and improvement in education, maternity services and health
Husain A, Johnson K and Glowacki CA. 2005	<u>Surgical management of complex obstetric fistula in Eritrea.</u> Journal of Women's Health. 37 Women. Eritrea	To determine the outcomes of surgical repair of complex fistula by a visiting surgical team	The majority of the women had fistulas related to obstructed labor at their first pregnancy unattended by any healthcare professional and more than half had resulted in stillbirths. Specialized surgeons can successfully accomplish surgical procedures and repairs of very complex urinary tract fistulas in a very short mission to a resource-poor nation
Peterman A, Johnson K and Social Science & Medicine. 2009	Incontinence and trauma: sexual violence, female genital cutting and proxy measures of gynecological fistula. Girls and women aged 13- 45 years. Malawi, Rwanda, Uganda and Ethiopia	To specifically examine the co-occurrence of incontinence and two potential sources of trauma: sexual violence and female genital cutting using the most recent Demographic and Health Surveys	Results indicate that sexual violence is a significant determinant of incontinence in Rwanda and Malawi, however not in Uganda. In contrast, no evidence is found that female genital cutting contributes to incontinence. Results point to the importance of reinforcing prevention programs which seek to address prevention of sexual violence and for the integration of services to better serve women experiencing both sexual violence and incontinence
(Mornar SJ & Perlow JH). 2008	<u>Blunt suture needle use in laceration and episiotomy repair at vaginal delivery</u>	To determine whether blunt suture needles represent a safe and effective alternative to sharp needles	Attending and resident physicians completed 80 surveys, and 83% reported previous needle-stick injuries. Blunt suture needles were rated as excellent or good by 92.5% because no needle stick injury occurred. In an effort to reduce needle-stick injuries, the use of blunt suture needles is safe and effective for repairs at vaginal delivery.

These five articles discuss similar reasons, which is finding the solution to prevention measures of VVF in developing countries and what is to be done to improve the situation. One article discusses direct prevention of fistula occurring during delivery when skilled providers identify women and girls at risk of obstetric fistula using innovative interventions. The article also included community-based programs, which could be used for social education to prevent fistula and midwives can play a key role in the prevention and treatment of this tragic obstetric complication (Miller et al 2005, 8).

The second article discusses that when specialized surgeons are available, successful surgical procedures and repairs of very complex urinary tract fistulas in resource-poor nations can be successful (Ramphal & Moodley 2006, 4). The third article discussed the importance of reinforcing prevention programs which seek to address prevention of sexual violence and for the integration of services to better serve women experiencing both sexual violence and incontinence (Peterman et al 2009, 8). The fourth and fifth articles discuss accessible emergency obstetric care necessary to decrease the burden of obstetric fistulae in Africa and how it could be accomplished through increased and improved health care facilities and education of providers and patients (Husain et al, 2005, 8). Also the usage of blunt suture needles were rated as excellent or good during caesarean section or pelvic operation procedures and reduces needle stick injuries, and was considered as safe and effective for repairs at vaginal delivery (Monar & Perlow 2008, 4).

5.2 Results of literature review

This part discusses literature review results to answer the research question; How can women in Zambia at UTH prevent VVF occurrence. A long list of factors associated with VVF prevention was found. The author found out from the research that any of the factors are in one way or another linked to one another. However, four main categories were established since they were seen to cover the most important and most frequently mentioned factors affecting the VVF prevention in Zambia. These are lack of knowledge about VVF prevention among health workers, illiteracy, poverty and lack of equipment within most of Zambian health care units.

The results of the research articles showed that VVF has much different kinds of ways on how to prevent it and these are stated in this research. In developed countries it is not at all a problem, because of well-educated personnel, enough medical equipment are available when needed and even women themselves know how they can prevent

VVF completely (Ramphal & Moodley 2006, 4). As for developing countries including Zambia, they still face such problems among many women due to the above mentioned factors. There is need to address these factors causing VVF in developing countries and information distribution about VVF prevention measures should be revised to help prevent VVF. For example, the social, economic and psychological effect on the health and well-being of women in Zambia by addressing this matter physically in small communities by health care personnel (Husain et al 2005, 8). Table 8 and 9 are taken as a case study just to illustrate obstetrical fistula repair success and failure rates.

Table 8. VVF complications. (C-H Rochat, 2003.)

<ul style="list-style-type: none"> ➤ Complications at the of delivery <ul style="list-style-type: none"> • Perinatal mortality: 98% • Ruptured uterus: 10%
<ul style="list-style-type: none"> ➤ Sectio rate: 40%
<ul style="list-style-type: none"> ➤ Maternal mortality?

Health care members should attend courses discussing VVF preventing measures and they should be given more information on the importance of educating women about how important it is that they go for antenatal visits in clinics. It is important to emphasize how really important it is for the health of the unborn child and the one expecting while they are pregnant to be able to prevent VVF in Zambia. (Ramphal & Moodley 2006, 4.) Since direct prevention can be achieved, when skilled providers identify women and girls at risk of obstetric fistula and link them with innovative interventions. In hospitals, there should be specialized surgeons available, to be able to perform successful surgical procedures and repairs of pelvic area operation to avoid injuries. (Husain et al 2005, 8.)

Table 9. VVF treatment at one of the clinics in Africa. (C-H Rochat, 2003.)

n=112	Vesico-vaginal Fistula
Success rate n (%)	84 (76.4)
Treatment failure	16
Stress incontinence n (%) (uterero – sigmoidostomy)	21 (24)
Urinary diversion n (%)	6 (4.6)

It is very important to reinforce prevention programs in communities, which seek to address prevention of sexual violence and for the integration of services to better serve women experiencing both sexual violence and incontinence. This can help prevent VVF integration in local communities. (Miller et al, 2005, 8.) Accessible emergency obstetric care is necessary to decrease the burden of obstetric fistulae in Africa and it could be accomplished through increased and improved health care facilities and education of providers and patients. Also the usage of blunt suture needles for operation procedures reduces needle stick injuries. (Monar & Perlow 2008, 4.)

Prevention should involve alleviation of poverty and improvement in education standards, maternity services and health care. Reducing illiteracy levels, increase information about VVF and conduct workshops in rural areas can help prevent or reduce VVF levels. Future reproductive function, dermatological management; social and cultural issues should take place to improve women's health. (Peterman et al, 2009, 4.)

6 LIMITATIONS

During the process of literature evaluation based on the mentioned databases in the literature review part, the author found it hard to find articles discussing prevention of VVF only. The data was either mixed with causes of the disease, prevention and so forth. When searching for prevention on VVF, the results gave information about what VVF is. This took long time to find articles discussing prevention of VVF in developing countries. Otherwise, it was manageable to find enough articles discussing and answering the research question.

This topic was broad, making it challenging and difficult to find solutions discussing VVF prevention concerning Zambia only. Many searches were found discussing prevention of VVF in developing countries, but not in Zambia specifically, it was satisfactory because Zambia is one of the developing countries. This literature review provided information about the current information of VVF prevention methods with its new research articles.

7 DISCUSSION

The purpose of this study was to investigate the method used to prevent VVF occurrence in pregnant women in Zambia. These findings were developed through the process of analyzing various articles discussing this topic in order to come up with reasonable results.

Poverty is the root-cause of obstetric fistulas. Early marriage, low social status for women, malnutrition, and inadequately developed social and economic infrastructures are all more common in poor areas. Most importantly, these areas lack access to emergency obstetric services due to nonexistence of health care centers and trained personnel. Fistulas are most prevalent where maternal mortality is high. Maternal deaths are due to preventable causes by hemorrhage, infection, hypertensive disorders of pregnancy (pre-eclampsia and eclampsia), unsafe abortion, obstructed labor, etc.

7.1 Conclusion

The conclusion made out of this study is that there is need for more training of health care workers about VVF, education is needed in smaller communities and equipment in clinics and hospitals are needed to be able to improve the prevention methods of VVF occurrence in developing countries. The Zambian government could help prevent VVF occurrence by providing enough needed facilities in clinic centers and hospitals, by also making sure that equipments are used properly for the right purpose. The health care system was one major problem because the economy is not strong enough to provide proper health care services and medications for every individual in country. In addition, developing countries face lack of natural resources that are essential for life. Hence, health care workers find it hard to carry out their duties in providing the best medical and surgical treatment needed for patients. It is very necessary that pregnant girls and women in Zambia should get more knowledge about the benefits of antenatal visits from where they could get more information about VVF.

This study could be used to educate, guide and prepare health care students about why it is important to give information to patients (informed consent) and to remind their patients about this each time that they attend to them.

7.2 Reliability and validity

The literature review selected was reliable, because it had all the information needed to answer the research question. The articles chosen were accurate and professional with current findings. Despite the fact that the number of researches in this literature review was few, they were able to answer the search question well. These articles were new and explained the measures to be taken into practice in order to be able to prevent the occurrence of VVF in developing countries.

7.3 Recommendations

VVF has been a medical and social problem for patients, and it remains a surgical challenge especially in developing countries. It is well stated what VVF is, the causes and risk factors in developing countries including prevention measures. Still VVF disease is still a problem and difficult to prevent in developing countries, though it is preventable and treatable. Many pregnant girls and women are affected and suffer from VVF due to numerous factors contributing to this problem. The outcome is that all issues concerning VVF in developing countries are well stated theoretically, but not practically. Lack of experienced staff in health care units makes it challenging and hard to prevent VVF in developing countries.

Lack of staff causes a lot of distress among nurses and midwives. For example, health-care workers who have to help in child deliveries without knowing the patient's antenatal history make it even difficult to implement prevention measures. Due to shortage of staff in most clinics and hospitals, workers believed that they were unable to provide good quality nursing due to heavy workload. Frustration over lack of information and education for mothers possessed as another challenge and this made it difficult for them to explain the importance of following the guidance and prevention methods of VVF prevention to pregnant girls and women.

Individuals having VVF did not have enough education and they did not know the importance of antenatal follow ups, because they could not read and write. And they wished the community workshops can be held to help them understand about this issue.

Due to lack of resources and equipment it was often difficult to proceed and improvising was highly necessary. Non sterile and wrong instrument usage contributed to high infection incidents and injuries to women in delivery. In addition lack of drugs,

equipment and lack of staff made health care providers feel helpless and exhausted which made the procedures hard to perform and increased the amount of incidents of VVF.

It was amazing and interesting that many campaigns have taken place in Zambia to prevent VVF yet it is still a problem. Author being a Zambian, observed that the government is not putting enough effort to resolve this problem especially that the birth rate is high in Zambia. It was also observed that this matter should be addressed more seriously. When results from literature review were compared with the results from this research, they match very well together and they discuss the same things about future prevention and occurrence of VVF. Working on factors affecting this disease is the number one approach to help preventing VVF in Zambia.

Women in Zambia could participate in preventing VVF by being educated in a proper way using the language they understand with a better understanding of what VVF is, causes, how it can affect women and the prevention measures which should be followed to avoid VVF.

Illiteracy can be dealt with by nurses based in antenatal centers interpretation from English to local languages, especially making sure that the patients understand. Poverty is one of the most challenging issues concerning VVF prevention, because pregnant women who are poor are vulnerable and are at risk of developing VVF. The nurses in Zambia together with women should work with the government about helping them to be able to prevent and reduce VVF occurrence. The Zambian government should provide enough equipment in hospital and clinics and make sure there is staff monitoring to reduce equipment theft.

The author is aware that the Zambian government receives a lot of money through donations and funds concerning health care, it is possible to prevent VVF in Zambia, if these right funds could be used for the right purposes.

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