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Knowledge of Pregnant Mothers on the use of Prevention of Mother to Child Transmission of HIV Services in Kenya: A Cross Sectional Study at Bungoma County Referral Hospital

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Abstract

Background: Mother-to-child transmission (MTCT) of the human immunodeficiency virus (HIV) remains the major source of HIV infection in young children. Targeting pregnant women attending antenatal clinics provides a unique opportunity for the implementing prevention of mother-to-child transmission (PMTCT) programs against HIV infection of newborn babies.

Objective: To identify factors affecting Knowledge of prevention of mother to child transmission of HIV services among pregnant women attending antenatal clinic in Bungoma County Referral Hospital.

Methodology: A cross-sectional study was conducted among pregnant mothers attending antenatal care clinic at Bungoma County Referral Hospital. A systematic random sampling technique was used to select 50 respondents, using Fisher et al, 1999. The data was collected using structured interviewer administered questionnaire prepared to address knowledge, and associated factors on PMTCT services. Data was entered and analyzed using Statistical Package for Social Sciences (SPSS) version 20.

Findings: A big number (40%) of the mothers did not know about PMTCT services which were being offered in the hospital. It was noted that the respondents who had little or no knowledge of the services were mostly below 25 years of age and those with low education levels. On the attitude towards PMTCT services it was found that (44%) reported that it is good to take on PMTCT services if reactive and (56%) of respondents reported that PMTCT services are wastage of time because AIDS has no cure.

Conclusion: The educational level was the most important factor in understanding PMCTC services

Recommendation: To improve and increase sensitization and awareness to the communities on what PMTCT program entails.

Keywords: Prevention of mother to child transmission, Human immunodeficiency virus, Acquired immunodeficiency syndrome, Antenatal clinic.

Introduction

Mother-to-child transmission (MTCT) is when an HIV-infected woman passes the virus to her baby. This can occur during pregnancy, labor and delivery, or breastfeeding. Without treatment, around 15-30% of babies born to HIV positive women will become infected with HIV during pregnancy and delivery. A further 5-20% will become infected through breastfeeding [1]. In 2009, around 400,000 children below 15 years became infected with Human immunodeficiency virus [2], almost all of MTCT infections occurred in Sub-Saharan Africa, and more than 90% were as a result of mother-to-child transmission (MTCT) during pregnancy, labor/ delivery, and breastfeeding. There is still fear of disclosing one’s HIV status(or of learning it) because of the stigma that exists for people leaving with HIV/AIDS which hinders women from seeking PMTCT services and results in poor adherence to PMTCT interventions, in particular safer infant-feeding decisions. Being confident enough to disclose one’s HIV status is one of the most powerful ways to reduce HIV related stigma. Disclosing one’s status also has other benefits, it can encourage partners to be tested for HIV and prevent the spread of HIV by allowing those infected to openly take appropriate prevention steps. Therefore knowledge and awareness on PMTCT of HIV has an impact on the practice of HIV testing, taking medication and attitude toward PMTCT interventions among pregnant mothers. Globally, approximately 289,000 maternal deaths occurred in 2013. Sub-Saharan Africa
accounts for about 98% of maternal deaths in Africa. In addition the human immunodeficiency virus (HIV) and the acquired immune deficiency syndrome (AIDS) were associated with 1.8 million deaths including 250,000 among children less than 15 years in 2010 [3]. In Cameroon, AIDS-related diseases were associated with 980 maternal deaths in 2010 meanwhile the same year, 5% of under-5 mortality was linked to HIV/AIDS [4]. Maternal and child health outcomes have been shown to be linked to the quality of antenatal care (ANC), delivery services and post-natal care [5]. Prevention of mother-to-child HIV transmission (PMTCT) strategies introduced in 2004 have become integrated into all maternal and child health services. Antenatal care (ANC) is a major entry point for PMTCT programs especially in countries with a high prevalence of HIV. The World Health Organization (WHO) recommends four ANC visits during pregnancy [6], which allows for early diagnosis, prevention or treatment of conditions which may jeopardize the health of the mother or her unborn baby. High maternal, neonatal and child mortality rates are associated with inadequate and poor-quality maternal health care, reflected in the "three delays"; deciding to seek care, reaching the health care facility in time and receiving adequate treatment [4]. In the absence of intervention 50% of children born to HIV positive mothers will die before reaching their second birthday [7]. The challenges facing the PMTCT programs in sub-Saharan Africa are numerous including large proportions of home deliveries, fear of the cultural implications of a positive HIV test result, such as the lack of male partner support and even violence [8]. In the context of an HIV epidemic, the WHO developed a four-prong approach to optimize the effectiveness of PMTCT interventions aimed at improving maternal and child health, which include primary prevention of HIV among women of reproductive age, prevention of unintended pregnancies among HIV infected women, PMTCT interventions and provision of care, treatment and support for children, mothers and affected families.

The expected expansion of PMTCT services on the Sub-continent has however, been faced with less than satisfactory utilization. Use of services such as facility delivery and postnatal prophylactic ARV is reported to be between 20% and 47% in many settings [9].

In Kenya, interventions to reduce PMTCT are integrated in Maternal and Child Health (MCH) services in health service delivery institutions. These also include HIV testing during ANC attendance to identify pregnant women living with HIV, maternal and infant antiretroviral treatment, safe obstetrical care, infant feeding counseling and support, and family planning services to delay future pregnancies or prevent unintended pregnancies [10]. Kenya launched its PMTCT program in 2000, but only modest expansion of PMTCT services occurred in the first three years that followed National Aids and STI. Despite these low levels of service uptake, there have been limited studies attempting to document reasons for underuse of PMTCT services. The objective of this study was to determine factors affecting utilization of PMTCT services among pregnant women as well as their perceptions of service delivery dynamics that are associated with the uptake of PMTCT services.

In a setting like Kenya with ethnic diversities, many factors can affect a woman's ability to seek MCH and PMTCT services and hence adopt positive behaviors. These may include marital status, socioeconomic status, age, parity, history of delivery complications, religion and cultural factors.

Identifying factors influencing uptake of MCH/PMTCT will inform policies and programs to help improve maternal and child health outcomes. The cascade for diminishing services used at PMTCT/MCH services demonstrate that Kenya is and may continue to face key public health challenges for MCH/PMTCT. Considering national and global interest in the millennium sustainable goals 4 (reduce child mortality), 5 (improve maternal health) and 6 (combat HIV/AIDS, malaria, tuberculosis and other diseases) understanding these factors is crucial. Also knowledge of barriers will ensure that women and children are retained in prevention, treatment and care services in Kenya.

Despite improvements in PMTCT services over the years, MTCT of HIV infections is high especially in sub-Saharan Africa. In 2009 alone around 400,000 children less than 15yrs became infected with HIV and 1.3 million children and adults died of [2]. Mother-to-child transmission (MTCT) of human immunodeficiency virus (HIV) remains the major source of HIV infection in young children. Targeting pregnant women attending antenatal clinics provide a unique opportunity for implementing prevention of mother-to-child transmission (PMTCT) programs against HIV infection of newborn babies. The objective
was to investigate the pregnant women’s knowledge of Prevention of Mother- to-Child Transmission of HIV (PMTCT) services.

**HIV/AIDS and PMTCT in Kenya**

Kenya began implementing PMTCT programs as standalone programs in 2002 and has committed itself to elimination of mother-to-child HIV transmission by 2015. Global elimination of mother-to-child HIV transmission (MTCT) is targeted for 2015 and is an initiative which will require strategic improvements in service delivery [11]. As PMTCT interventions have expanded globally, challenges in delivery and uptake of services have persisted. The World Health Organization (WHO) estimated that in 2010, in low and middle income countries, only 35% of pregnant women received HIV testing, and less than half of HIV infected women tested accessed antiretroviral (ARVs) for PMTCT. The Kenya Ministry of Health has made great strides to increase PMTCT coverage, with provision of ARVs to HIV-infected pregnant women increasing from 20% uptake in 2005 to 69% in 2011 [12]. As a result, new child HIV infections in Kenya have decreased, averting 46,000 new infections since the introduction of PMTCT [13]. However, the number of newly infected children per year remain high (13,000 in 2012), [3] and recent estimates of MTCT rates, while 5% in clinical trial settings, range from 8 - 27% in Kenyan surveys [14].

PMTCT programs in Kenya include HIV counseling and testing, referral to HIV care/treatment for those found positive, provision of prophylactic ARV medication to HIV positive mothers before delivery and for infants within 72 hours of birth, infant feeding counseling and DNA polymerase chain reaction (PCR) testing for infants born to HIV positive mothers [15].

The HIV status of infants born to HIV positive mothers are detected as early as 6 weeks after birth using the polymerase chain reaction (PCR) test. The test can reliably and accurately detect HIV DNA on a dried blood spot (DBS) specimen. The early infant diagnosis has been improved due to the DNA/PCR test and can subsequently lead to early referral of HIV infected infants for appropriate care and treatment and this reduces the morbidity and mortality of HIV positive infants/children. Without any intervention, statistics show, 30% of HIV infected children will die in the first year of life and 50% would be dead by the second year [12].

**Factors affecting PMTCT utilization**

Generally, as documented by Health Bridge in 2007, the PMTCT factors affecting many African countries include: home delivery, involvement of males, compliance to taking ARV’s and prophylaxis and follow-up, stigma and feeding choices, costs and drug availability, human resources and health system factors and PMTCT data management.

The Namibia PMTCT country report which was compiled by [15] outlined the key implementation challenges to scaling up PMTCT program. Some of the key challenges included factors such as the lack of male involvement, shortages of staff and neglected follow-up after delivery for both mother and baby. Infant feeding poses another challenge as little is known what will happen when the mother leaves the health facility. Training and retraining of health care workers, is another challenge as they are continuously on the move in search of careers. Also there is a weak link when it comes to comprehensive care for mother and baby, children and partner. Sometimes it is difficult to tell that if someone tests positive at ANC they will end up at ART clinic after being referred and also at times there are great distances between ANC and ART clinics and people must travel to an ART clinic and some may not go due to affordability. It was also documented in this report that from 62,000 expected pregnancies each year in Namibia only 55,000 of them attend ANC and about 7,000 pregnant mothers are not captured.
Methodology

Location and study design

Bungoma County Referral Hospital is located within Bungoma town in Bungoma South Sub-County. A descriptive cross sectional study was conducted to collect data. The study period was from December 5th to 23rd, 2016. Systematic random sampling was used to select the respondents. A sample size was determined using [16] formula, which gave the final sample size of 50 respondents.

\[
\text{In calculating sample size: the level of utilization is 50%} \\
\text{Thus } p = 50\% \\
\text{And } q = 50\% \\
\text{From fishers formula } n_0 = \left(\frac{z^2PQ}{d^2}\right) \\
\text{z = } 1.96 (\text{z score associated with 95% confidence level.}) \\
\text{d = discrepancy tolerated on } p = 0.1 (\text{so the level of level of utilization is given } a \pm \text{ of 0.1}) \\
\text{Therefore, } n_0 = \left(\frac{1.96^2 \times 0.25}{0.01}\right) \approx 96
\]

\[
\text{Adjusting for a small target population of 105 target population;} \\
\text{n = } \left(\frac{N_0n_0}{N + n_0}\right) \\
\text{\(105 \times 96\)}/(105 + 96) \approx 50.15 \\
\text{Sample size = 50.}
\]

Data collection and analysis

The data was collected using structured interviewer administered questionnaire prepared to address knowledge and associated factors on PMTCT services. The questionnaires were administered to all the systematically selected pregnant women who fulfilled the inclusion criteria while attending ANC clinic at the hospital. Data was entered into and analyzed using Statistical Package for Social Sciences (SPSS) version 20.

Ethical consideration

Research Ethical approval was sought from Bungoma County Referral Hospital administration committee; all selected respondents were communicated to, about the objective of study in order to obtain their verbal consent before administering questionnaires. Information communicated with individual subjects was kept private and confidential.

Study findings

Introduction

This section presents the results on Socio-demographic information (Age, marital status, Educational level and occupation), Knowledge of PMCTC, sources of information and importance of HIV testing during pregnancy, as outlined below.
Socio-demographic variables

![Figure 1: Age of respondents](image1.png)

**Figure 1.** Age of respondents

Slightly more than half of the respondents (58%) were aged 26-34 years while 28% were aged between 15-24 years and 14% were aged 35-44 years (figure 1).

![Figure 2: Marital status of the respondents](image2.png)

**Figure 2.** Marital status of the respondents

From the pie-chart, Majority (44%) of the respondents were Married and 38% single while 18% divorced (figure 2 above).
From figure 3 above, most (46%) of the respondents had attained primary education while (28%) had attained tertiary education and 26% had attained secondary level of education.

Table 1. Occupation of the respondents

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Employed</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Farmer</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Students</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Housewife</td>
<td>11</td>
<td>22</td>
</tr>
</tbody>
</table>

Knowledge ON PMTCT

Table 2. Knowledge on PMTCT

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 2 shows respondents occupation from Business to house wife. The most of respondents were doing their own businesses while the least were the house wives. The employed constituted only 22%.

PMTCT services were well known by a greater percentage of the respondents 60% while a smaller portion 40% didn’t have knowledge on the same (Table 2).
Sources of information on the available PMTCT services included Hospitals (26%), Lectures (8%), Media (12%), Seminars (14%) while who had never heard of PMTCT service had no source of information accounting for 40% (figure 4).

Table 3. Importance of having HIV test during pregnancy

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>31</td>
<td>62</td>
</tr>
<tr>
<td>No</td>
<td>19</td>
<td>38</td>
</tr>
</tbody>
</table>

Majority of the respondents 62% knew that it was important to have a HIV test during pregnancy while 38% didn’t know (Table 3).

Attitude towards uptake of PMTCT services

On whether the reactive women should have children due to fear of vertical transmission, a greater percentage of the respondent didn’t have an idea 26% and those who said No were 36% while those who knew that reactive women should never breast feed their babies due to fear of mother to child transmission of HIV were 56%.

A greater percentage 48% of the respondent spent too much time waiting for ANC services and a few 4% of them had no comment on time spent while majority of the respondent 52% spent too much time waiting for pmtct services, hence perceived the services as a waste of time.
Figure 5. Sources of encouragement to attend ANC

Health providers 38% and mothers 26% played a major role on the source of encourage to pregnant mother to attend ANC while partner was 18%, followed by peer counsellors 16% and none 2% (Figure 5).
Lack of support from partners and stigma were the main challenges to uptake of the available services (figure 6).

Majority of the respondents 58% were not comfortable and 42% were on the way of counseling, while pregnant women interviewed 56% were not willing and 44% were willing to take the services after testing due to stigmatization.

Majority of the respondents 68% were willing and 32% were not willing to have a HIV test after counseling while pregnant women interviewed 82% were not willing while 18% were willing to disclose their HIV status to anyone after testing.

**Discussion**

**Knowledge on PMTCT**

Bungoma County Referral Hospital MCH clinic serves a wide range of clients whose level of education ranges from primary to tertiary due to its location in an urban area. The respondents interviewed in the study had various levels of education ranging from primary to tertiary, with the majority (28%) having tertiary, 26% secondary and primary 26% level of education, however only 30 (60%) of the respondents had knowledge on PMTCT. Majority of the respondents 31(62%) had knowledge HIV as they were more common because most of continued health education provided by the hospital as well as the community health. The study showed those who were 26 years and above were more exposed to different sources of information and had experience on antenatal issues since they always came for counseling in Health Centre. The other groups were those who marry when they are still young and therefore do not take antenatal issues serious and the under 25 years who get pregnant before marriage and do not disclose due to fear from their parents and the society who are against having
children out of marriage. These findings coincided with the studies previously found at Kakamega, Nakuru, Karatina and Thika district Hospitals in Kenya [9]. The study findings showed that respondents’ occupation and the knowledge on PMTCT services revealed that those in formal employment had more knowledge on the services. The high level of knowledge about PMTCT by civil servants is attributed to their high education levels compared to other categories. It was also found that the same group complained about the much time they spend waiting for the antenatal services, since they always have to report back to the work places. Those involved in business, and other occupations were the next big category who knew about PMTCT services. This group was also exposed to different media and they also interact with different levels of people when they are carrying out their activities. Similar findings have been reported in a study done in Mbaale regional hospital ANC [17]. Sources of information about PMTCT included interactions with friends during antenatal visits 26%, media programs 12% and seminars lectures 8%. It was also clear that the most reliable source among these was sensitization and counseling sessions at the hospital during antenatal visits.

Attitude(s) towards PMTCT services

Most pregnant mothers 62% felt it was important to have an HIV test and know their status while few (38%) did not see the importance of knowing the HIV status because, as pregnant women had have a negative attitude towards HIV testing. The reason for this being fear and stigma associated with HIV/AIDS as a disease. This indicates fear and stigma people have towards HIV and AIDS and the way People living with HIV/AIDS (PLWHA’s) are stigmatized. However this is not only in Kenya but was also reported in Zambia in a study on PMTCT conducted by [18] whereby the findings indicated that there is a high level of stigma against HIV/AIDS patients. The community tends to shun persons who are known to be reactive or have symptoms of AIDS. Those who said it was good to have a HIV test during pregnancy was as a result of to increased health education and sensitization during ANC visits as well as increased dissemination of information on HIV.

Most of the mothers (36%) reported that reactive woman should not have a baby while 26% of the respondents didn’t have an idea and the rest 38% had knowledge on the same. Those who reported that a reactive woman should not have a baby gave a reason that this could shorten her already ‘numbered days’ since women loses a lot of blood in the delivery process. The other reason given was that some thought it was obvious a reactive woman will infect the baby, therefore they were not convinced there was need for the woman to give birth. This discussion was found similar to a study done at Mbaale regional hospital ANC, indicating that there was still a gap in knowledge as far as PMTCT is concerned [17].

On the other hand respondents who reported that a reactive woman should have a baby recommended it because few of them are aware the baby can be born free of HIV because of PMTCT services, if the woman attended antenatal regularly and delivered from the hospital. Surprisingly, the other respondents looked at it in the cultural perspective that, it is the tradition for every woman to produce children irrespective of the HIV status.

Some mothers (20%) said reactive woman should breastfeed her baby, while 56%, said no and 24% didn’t know if they should breastfeed their children if found reactive. The respondents who reported that reactive mother could breastfeed, at least knew that the baby born of an infected mother could still be safe if she is enrolled for PMTCT and also breastfeeding may not be dangerous when done exclusively, which was not known by some people that a reactive mother could breastfeed exclusively and the baby be safe. It was again found that among those who reported that the baby should be breastfed thought it was every mother’s obligation to breast feed her baby. Others reported that there were mothers who could not afford to buy other types of milk, so breast milk was their only option. Among these however, there were those who knew about exclusive breastfeeding due to counseling from PMTCT program at the antenatal clinic.

On the issue of the husbands’ and community’s reaction when a wife/mother does not breastfeed her child, it was found out that if the husband knew the wife was sick, the wife/mother was advised by the health workers not to breastfeed at all then the husband supported her, but if the husband did not know,
then this could cause problems at the family level. These findings were similar with those found by in a study done in Uganda and Tanzania [19].

Most of the respondents (48%) reported spending too much time waiting for ANC services while a few (4%) did have any comment on the same. This was as a result of high population in the town that led to high flow of clients at the clinic hence long waiting hours.

**Utilization of PMTCT services and associated barriers**

Study findings showed that there were a number of things that affected the level of utilization of PMTCT services; these include lack of male involvement which counted for 36%. [20] reported that many health facilities implementing PMTCT programs do not focus on involving men in these activities. This has led to poor communication between spouses as far as disclosure of HIV status is concerned. As a result there is poor attendance to clinic due to lack of support either financially or encouragement from the spouse. Findings also showed that males do not escort their pregnant partners due to a large age difference which is similar to a study done in Gambia by [21] which showed that a big age difference in a couple between an old man and a young woman restricts men from escorting their partners to a clinic as the men feel ashamed. Other reasons given for lack of involvement by men was their limited time availability for attending the clinic and this was further exacerbated by long waiting hours for clinic services and laboratory procedures. These findings are also similar to those reasons identified by [21] regarding the lack of male involvement in PMTCT programs.

Respondents 30% felt that there was much stigma surrounding HIV/AIDS and lack of sensitization to accept their status. This as a result leads to a larger percentage of the respondents not willing to disclose their status and as well as fear to uptake the available PMTCT services hence the underutilization of the services. There is disproportional relationship between the number of health care workers and the number of patients who come to seek care at the health facility. As a result the health care providers tend to be unfriendly due heavy workloads caused by high patient load and also because they are obliged to implement a multiple programme at the health facility and hence end up doing multiple activities. This concurs with the study finding [22] which confirmed unfriendly health care providers to be a barrier to uptake of PMTCT services.

Though a big number of the respondents 20% reported time spent waiting for antenatal services was too much, this may not stop them from coming for the services, but however wish the time was less. It was found that some of those who complained of the time being too much were public servants and self-employed people who come for antenatal services and had to go to work, and would not wish to wait for long. Some of those who said the time was much come from very far places and need to walk back to their villages.

Some of the respondent 14% felt that they could not access the available PMTCT services as required due to financial shortages which they are facing due to high levels of poverty in their areas. Those who said so had to travel from far places in order to attend ANC and also to enroll on the PMTCT services at the clinic. Those who were not comfortable 58% with counseling reported that counseling was done for groups and not to individuals this makes them uncomfortable to ask personal questions. They preferred not to go for counseling at all and as a result they felt that they will be stigmatized if found reactive due to self-denial [23].

Most of the respondent 56% were not willing to take PMTCT services, this was as a result of fear and escape from discrimination from the community if found reactive. They also noted that PMTCT services were a waste of time since AIDS has no cure and they were sure that the virus will be definitely be transmitted to the infant. This was also attributed to lack of sensitization and sometimes no counseling done to the clients [22]. It was however noted that some respondents 38% reported not willing to take an HIV due to fear of being found positive. Most of the mothers 82% were not willing to disclose their HIV status after testing as this was a way of avoiding stigma from the community. Other even preferred not to take the test at the hospital laboratory since most of the workers were either neighbors or relatives.
Conclusion and recommendations

Conclusion

The study concluded that both socio-cultural and structural factors play a role as barriers to the PMTCT programme and hence its outcomes. The study found that home deliveries are still common practice in a number of communities in Bungoma County and as a consequence impair the PMTCT programme. Lack of male involvement is another hindrance faced by the programme and men and the health facility have to find some measures to bring more men on board as ANC is not just a women only affair. Recruitment of new staff, review of current staff establishment and sending more health care workers for training and re-training are important measures for the programme as currently health facilities are facing a severe shortage of human resources and heavy patients load.

Health facilities still need a better way of monitoring their data as they rely only on manual data entries which most cases are likely to generate data of poor quality. Computerization of sites and employment of data clerks are required for proper data management. Many sites are trying to implement activities which would help to minimize and clear PMTCT barriers.

Other services such as linking of patients to support groups, defaulter tracing and conducting outreach activities to cater for patients who live far from the health facilities have been awarded to some of the sites but they need to be more emphasized and strengthened. People’s attitude and utilization of PMTCT services were affected by the insufficient knowledge on what the PMTCT program entails and the benefits of the services as far as mother to child transmission of HIV is concerned.

Social demographic characteristics of the respondents, the knowledge and attitude towards PMTCT influenced their behavior towards PMTCT services.

Recommendations

The study wishes to recommend the following to the policy makers and all stake holders of the PMTCT and HIV/AIDS programs:

- Increase awareness of HIV/AIDS and PMTCT programs.
- Health education has to be provided by all key stakeholders and not only the hospital or health facilities. Dissemination of information has to be done at schools, churches, all gatherings, using media such as TV, radio, newspapers, etc.
- Programs should be multi-sectorial: have to involve not only health care workers but also committed politicians, village headmen, traditional herbalists and also traditional birth attendants.
- Clinic have to conduct outreach services to ensure they cover all pregnant mothers and to ensure that they are all registered for ANC services.
- Clinic have to motivate about male involvement and have to create an environment where men will feel a clinic is friendly towards them.
- Issues concerning HIV and stigma, as well as stigma associated with formula feeding, have to be cleared up through health education and disclosure.
- There is need to increase PMTCT counselors at the hospital staff to handle the PMTCT program in Bungoma county Referral hospital.

References


The Burden of Hypertension and Diabetes Mellitus in Rural Communities in Southern Nigeria by Alphonsus Rukevwe Isara and Patrick Otamere Okundia

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Abstract

This is a review of the article titled "The burden of hypertension and diabetes mellitus in rural communities in southern Nigeria" written by the duo of Alphonsus Rukevwe Isara & Patrick Otamere Okundia as published in the journal Pan African Medical Journal of February, 2015, volume 20: page 103, with DOI number; doi:10.11604/pamj.2015.20.103.5619, and accessed from, http://www.panafrican-med-journal.com/content/article/20/103/full/. The review covered the evaluation of related literature, the structure of the article, authority, currency, accuracy, relevancy, objectivity and stability. Furthermore, appraisal of the tables, recent advances, credibility and accessibility of the article were carried out. The objective of the original article was to determine the prevalence of hypertension and diabetes mellitus among adult residents of rural communities in southern Nigeria. Chronic diseases such as hypertension, diabetes & obesity evidently had been on the increase and now are of public health importance in rural communities of developing countries, where it has been shown to complicate the outcome of cardiovascular diseases. The authors employed a cross-sectional survey method to screen adult residents of the selected rural communities in Southern Nigeria. Blood pressure, random blood sugar, weight, and height were measured and Body Mass Index was calculated from height/weight, as well, the respondents were interviewed with the aid of a structured interviewer-administered questionnaire. The result showed one-third of the participants had hypertension, one-third were obese/overweight, while about 4% had diabetes amongst others. Overall, this is an objectively written article, credible in all ramifications and has contributed to the body of knowledge on the topic especially in this part of the world. The challenge of hypertension, diabetes, and obesity is enormous and requires urgent intervention to forestall the rising trend of these disease conditions and its attendant complications in developing countries.

Keywords: Hypertension, Diabetes, Obesity, Overweight, Prevalence, Rural Communities.

Introduction

This article review critically reviews the article “The burden of hypertension and diabetes mellitus in rural communities in southern Nigeria” authored by the pair of Alphonsus Rukevwe Isara & Patrick Otamere Okundia in the journal Pan African Medical Journal. The subject of this study is one that has continually raised valid public health concerns considering the persistently rising prevalence of chronic illnesses in rural communities of Nigeria. Co-morbid factors like obesity are also on the increase in developing countries, complicating the outcome of cardiovascular diseases, thus, the proper timing of this study cannot be overemphasized. The review at the first instance presented the evaluation of relevant literature as it concerns the topic and as well outlined the summary of the article. Following it is a brief analysis of the effectiveness of the article's structure, and an exploration of the arrangement of the information in the article whether the person who reads it can efficiently access the information. Furthermore, the review took on, the critique of the article, appraising its authority, currency, accuracy, relevancy, objectivity, and stability. The tables were also analyzed, in addition to the evaluation of recent advances related to the topic of discussion before lastly judging the credibility as well as the accessibility of the article.
Review of literature

Hypertension remains the commonest cardiovascular disease with its attendant public health challenge, responsible for up to half of all cardiovascular death. (Park.2003). Hypertension is a systolic blood pressure of greater than or equal to 140mmHg and/or diastolic BP of 90mmHg or greater (WHO. 2003). The Hypertension prevalence of 37.4% found in this community study is much higher than 13% recorded by Asekun-Olarinmoye et.al, 2013 in Osun State and 25.1% by Ulasi et.al, 2010 in Enugu State. There is indeed a high prevalence of hypertension in sub-Saharan Africa as recorded by Opie et.al, 2005; as well the risk factors are more common in developing countries (Ibrahim, 2012).

According to WHO (2015), the mortality burden of diabetes has reached up to 1.5 million deaths by 2012, which fact was supported by IDF, 2006 reporting even a higher rate. Shaw et.al, (2009), stated that the global prevalence of diabetes among adults between the ages of 20 & 79 years, will be 6.4%, affecting 285 million adults, in 2010, however, by 2014, the estimate has risen to 9% according to World Health Organization, 2015 report. This development is worse for developing countries which harbor more than 4/5 of these cases. Furthermore, Abubakar et.al, 2008 also reported a rising trend of diabetes prevalence in Nigeria and Ghana.

Overweight and obesity is defined as the excessive accumulation of fat in the body. Obesity has severe negative health impact leading to bad outcome and death due to cardiovascular diseases (Akpa et.al 2008). This can be measured by using the body mass index (BMI). Obesity is fast becoming a public health challenge in developing countries as a prevalence of 32.4% was recorded in this study. Similarly, 31.1% prevalence was found in the study by Asekun-Olarinmoye et.al, 2013 in Osun State while 38.8% prevalence was found by Ulasi et.al, 2010 in Enugu State. Moreover, Jafar (2006) recorded a prevalence of 25% in an Indo-Asian population of Pakistan. According to the work of Iloh et.al, 2011, obesity is an emerging serious health concern in rural communities in Nigeria.

Article summary

The objective of the article was to determine the prevalence of hypertension and diabetes mellitus among adult residents of rural communities in southern Nigeria. The study is a community-based cross sectional survey which conducted the screening of adult residents of the selected communities for hypertension and diabetes mellitus using a blood pressure monitoring device and a glucometer device respectively. The respondents Body Mass Index (BMI) were also calculated using their weight and height measurement; as well they were interviewed with the aid of a structured pre-tested questionnaire. The research work showed an alarmingly high prevalence of hypertension and obesity among the respondents where more than one-third of the participants had hypertension, while about one–third were obese/overweight in these rural communities in Southern Nigeria. The study further revealed that obesity/overweight was a significant predictor of hypertension and diabetes, while age above 40 years and being a male was a predictor of hypertension. It showed that obese people are twice more likely and four times more likely to have hypertension and diabetes respectively while for diabetes, the obese are five times more likely to develop it. This calls for increased effort towards health promotion and education program directed at prevention and control of hypertension, diabetes, and obesity in rural communities in Nigeria.

Article structure

The article title, authors and their correspondence were presented followed by an abstract which briefly introduced the problem statement and the objective of the study, the methods, result and brief conclusion. Thus in a quick glance, the abstract gives a succinct summary of
the research study. Following the abstract is the body of the article which contained the various requisite sections as is normally contained in the report of a study of this kind. This makes it easy for a reader to quickly access the information contained in the report. These sections include; introduction, methods, results, discussions, conclusion. Others are the conflict of interest declaration, authors' contributions, acknowledgment, the list of tables and references. The introduction mentioned the background of the study, the statement of the problem and clearly stating the burden of hypertension and diabetes backed up by facts from the literature reviewed, then, stating the hypothesis and the objective of the study. Thereafter, the methods outlined the study design, setting, and population as well as the instrument of data collection, the measurements, and techniques of data analysis that was used. The sample size was documented and is adequate for the study, the described process fits random sampling technique, however, it was not categorically stated and the formula for sample size calculation was also not stated. The limitation of the method used was acknowledged, relating to the use of random instead of Fasting blood glucose measurement. Ethical consideration was also properly documented. The result section showed the salient findings as aligned to the objective of the study, the tables were used to facilitate a clear understanding of the results. Moving further, discussion section addressed the area of focus in the research and enriched with comparisons from citations of previous studies which were clearly referenced, and the limitations to guide future research on the topic. Finally, the conclusion which was unusually very short, lacking depth, though, it was able to highlight the success of the research in achieving its objective. By and large, the body of the research was logically developed.

Critique

Authority

Pan African Medical Journal (PAMJ) is one of the leading peer review journals of high repute in Africa. PAMJ in the process of publishing articles collaborates with African Field Epidemiologist Network (AFENET), a reputable association of epidemiologist in Africa. The article was searched using Google Scholar and Pub Med/Medline; both are credible research search engines. The author is an authority in the field of Public Health/Epidemiology with a profile that speaks volumes: a Consultant/Specialist Public Health Physician, Epidemiologist and an academician with the UBTH, Benin City, a foremost premier University in Nigeria. An author of several other articles published in peer review journals, a researcher with many years of research experience.

Accuracy

The research study, from which the information in the article was originated, is a current work of about two years old. The reference lists from where citations in the body of the text were made are current research works, thus, giving the necessary support to the accuracy of the information in the text. Furthermore, the peer review journal adopts a stringent review and editorial standard in the process of accepting articles for publication. Moreover, the other expert sources linked to the article upholds the accuracy of the work. Overall, the accuracy of the work is substantially optimal.

Currency

The Pan African Medical Journal received this article in October 2014, accepted the article in January 2015 and published it in the journal in April 2015. This is a most recent and current research work. Moreover, the references cited in the body of the text of the article were up to date works with range for most of the works between 2006 and 2014, and only four of the works were 1997 and 2003. Against the backdrop of the aforementioned, the article is a current research work that dealt on a very topical and contemporary health issue and can be relied upon.
Relevance

This is a journal for health professionals, students, academicians, policy makers and organizations with interest in issues regarding the health of Africans. It is highly credible in the context of the above-listed groups. The article was written to enlighten academicians, researchers, policy makers and organizations interested in the control of non-communicable diseases in Nigeria in particular and Africa at large. It would be very relevant to these groups, the researchers as a baseline for further research, the academicians for teaching, the policy makers for an informed decision as regards planning of health intervention projects to control non-communicable diseases and organizations for planning and implementation of such programs.

Objectivity

The objectivity of the information in the article is glaring. The research was well designed and conducted following all the rigors involved in a population-based research. The objective was clearly stated at the beginning and was seen to be achieved by the findings of the study. The references were current, appropriately cited, acknowledged and used to support the research decisions at the appropriate sections. The sample population was clearly defined as adult residents of the selected communities 18 years and above with the possibilities of generalizing the findings to other rural communities in the region as well the repeatability of the research studies.

Stability

This a stable resource article on the background of it source being a reputable peer-review journal for academic, health professional, policy maker, and stakeholders reference. It can be used in academic institutions by academicians for teaching and research, for health sector research, for public health intervention program development and the likes.

Analysis of graph/Chart/Table

Table 1: Social-Demographic Characteristics of Respondents
It is well outlined with the independent variables clearly delineated. The information is relevant, clearly stated, well arranged, and making it easily accessible.
Table 2: Prevalence of Hypertension and Diabetes Mellitus in rural communities
The table shows the results of the primary outcome variables, well outlined, properly labeled and clearly presented.
Table 3: The demographic characteristics and hypertensive status of respondents
The table depicts the association between the dependent variable and the independent variable, clearly stated, easily understood and relevant to the objective of the study.
Table 4: Respondents Demographic characteristics and diabetes mellitus status
This also depicts the association between the dependent and the independent variable, clearly stated, easily understood and relevant to the objective of the study.
Table 5: Multinomial logistic regression for the predictors of hypertension and diabetes mellitus in rural communities
The table is relevant, clearly stated and properly labeled.

Recent advances related to the topic

According to Thompson Noelle (2015), the measurement of Body Mass Index (BMI) has witnessed some advancement away from the traditional use of weight and height measurement. The traditional method formulae are 1. Weight in kilogram multiplied by height in meters squared [weight (kg) x height (m2)] or 2. Weight in pounds multiplied by height in inches squared multiplied by 703, [weight (lb) x height (in2) x 703].

The use of a handheld device developed for BMI is fast and easy and is becoming more popular than the traditional method. The mechanism of operation of the device is through the sending of safe electrical current through the body with subsequent measurement of the
resistance which the current encounters. The current travels fast through water but not through fat, thus, the higher the resistance, the higher the fat, thereby taking into account other factors that can affect the fat composition of the body like, muscle, sex of individual and age. The traditional method does not take into account these factors. This method is easy and fast and can become very useful in large-scale community-based studies by reducing the burden of BMI measurement and saving time and fund for the research. Further advancement in BMI measurement is the underwater method which is more accurate than the handheld device but its cumbersome and not a fast method, therefore, not suitable for a large-scale survey.

Moreover, research in this area of non-communicable diseases can include blood lipids measurement in order to cover metabolic syndrome as a whole entity. Bringing in triglyceride and cholesterol measurement has become very important as this is another co-morbid primary factor of the variables under study. In this case, obesity measurement can be done using the abdominal gait/ waist circumference measurement which to a large extent is superior to the use of BMI, especially as the age advances.

**Conclusion**

This is an article review which has evaluated, appraised and critiqued the structure, content, strengths and weaknesses of the study ‘The burden of hypertension and diabetes mellitus in rural communities in southern Nigeria’. Overall, this is an objectively written article, credible in all ramifications and has contributed to the body of knowledge on the topic especially in this part of the world. Improvement on the article could be in the methodology, especially in the area of stating formula for sample size calculation, sampling technique, in addition to an in-depth conclusion. The challenge of hypertension, diabetes, and obesity is enormous and requires urgent intervention to forestall the rising trend of these disease conditions and its attendant complications in our society. There is an urgent need to give attention to non-communicable diseases, to save thousands of lives being cut off by the complications of these ‘silent killers’. Health education and awareness for lifestyle changes, screening and early treatment of these conditions should be institutionalized in our health systems especially the primary health care system. The result of this research will be very useful to health authorities at local, state and federal government level for policy reforms as regards non-communicable disease control programs. The article is very accessible, current and relevant for academics, further research and policy decision making as regards public health intervention programs. It has also shown areas of further research.

**References**


Views and Perceptions of Teachers and Adolescents on Adolescent’s Pregnancy in School in Kavango Region, Namibia

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Abstract

The objective of this study was to determine the views and perceptions of teachers and adolescent’s on adolescent’s pregnancy in school in Kavango Region, Namibia.

A cross-sectional analytical study was conducted using mixed methods - quantitative approaches among 350 school learners (grade 6 to grade 12) and 150 school dropout adolescents (aged 12 to 19 years). For the qualitative approaches 15 school learners and 25 teachers went through an in-depth interview. In total a sample of 540 was utilized.

The stratified random sampling techniques were used in the selections of the circuit and the schools. Structured questionnaires were used in face-to-face interviews, and in depth interviews were conducted among the key informants (teachers).

Themes and subthemes were identified and discussed: Challenges for learners in grasping or understanding the concept on reproductive health towards; Poverty – early marriages, bribe from men. Identified cultural barriers on reduction of the prevalence of adolescent pregnancy, towards; Culture – uncomfortable and shy to talk about sex.

The study found that the following aspects/factors: lack of parental supervision; poverty; lack of knowledge and communication skills to talk to their children regarding sex & contraceptives; parental irresponsibility; lack of sex education; were associated with adolescent pregnancy in Kavango region.

Keywords: Adolescents, Teachers, Reproductive health, Sexual health.

Introduction

Teenage pregnancies give an impression of being unwanted because they are never planned. According to (USAID, 2011) 91% of teenage pregnancies in the Kavango region in Namibia were unwanted. The unplanned and unwanted pregnancies among teenage girls are often terminated by unsafe abortions, which may have a long-term negative effect on their social and emotional being. The Demographic Health Survey as reported in Ministry of health & social service, (MOHSS) 2013 and USAID 2011 study revealed that the teenage pregnancy rate in the Kavango Region was double the national average, standing at 34% among the 15-19 year old. The national average teenage pregnancy rate was 15% and 15.4% respectively; and three times the rates in some of the neighboring regions, such as Ohangwena, Omusati, and Oshana.

In Namibia, 2015 the prevalence of adolescent pregnancy was 31.3%; and as stated by Lillian & Mumbango, 2015, adolescent pregnancy was influenced by generation, region, highest educational level, socio-economic status and cultural factors. Therefore, intervention programs and policy initiatives should focus on youth, regions, everyone regardless of the socio-economic or culture.

Although different regions of Namibia are affected, Kavango region in Northern Namibia is mostly affected by the problem of teenage pregnancy. According to a USAID report (USAID, 2011), the region has the highest rate of 34% teenage pregnancy among 15 to 19 year olds.

With the commemoration of the World Population Day, the United Nations Population Fund (UNFPA,2013), released these statistics, which is celebrated on the 11 July every year.
This year the theme was “Investing in Teenage Girls “When the statistics were compiled, there were 245,431 adolescent girls population in Namibia aged between 15 and 19. 46,000 adolescent fell pregnant, 66% of the population between 15 and 19, 39% below the age of 15.

As previously stated, the pregnancy rates are high in some regions, with 20% of teenagers in some rural areas becoming mothers earlier than their counterparts in urban areas. One of the reasons being is that rural teenage girls only have primary-level education, while girls in urban areas are better educated. Apart from the academic factor, the report also said some girls do not know how to avoid falling pregnant, while others feel shy or are ashamed to access contraceptives (Kangootui, 2016; UNFPA, 2013).

The USAID report (USAID, 2011) on teenage pregnancy in Kavango region indicates that lack of access to family planning as a result of the traditional orientation of family planning in favor of older and married women by health care providers is partly responsible for teenage pregnancy in the region. Furthermore, the report indicated that while 98% of young people in Kavango were informed about contraceptives, but only 8.7% of them use it. Condom use in the Kavango Region was very low at 36%.

In Namibia the prevalence of adolescent pregnancy was 31.3%; and as stated by Lillian & Mumbango, 2015, adolescent pregnancy was influenced by generation, region, highest educational level, socio-economic status and cultural factors. Intervention programs and policy initiatives should focus on youth, regions, everyone regardless of the socio-economic or culture.

Adolescent pregnancy was considered a private matter that only involved the pregnant adolescent and the immediate family members. This issue has now however become a public concern. An increasing awareness of social and economic consequences of adolescent pregnancy has led to a consensus among researchers and policy makers and the general public at large that adolescent pregnancy and childbearing is a serious social problem. It is linked to concerns such as the spread of HIV/ AIDS, non-marital births, sexual abuse and neglect, abortions, infant and maternal mortality, high rate of unemployment, school failure and drop-outs, and loss of self-esteem and limited future career opportunities (Lillian & Mumbango 2015).

This article was extracted from the authors study “a model for reproductive health and pregnancy preventing strategies among adolescents in schools in Kavango region, Namibia” and thus cover the results related to the study to determine views and perception of teachers and adolescent on adolescent’s pregnancy in Kavango, Region, Namibia.

Objectives

The objective of this study was to determine views and perception of teachers and adolescents on adolescent’s pregnancy in Kavango, Region, Namibia.

Limitation of the study

The study focused only on public schools in Kavango region. Therefore, the outcomes of the study can only be recommended developing a model for adolescents within the public schools in Kavango regions. Consequently, the findings of the study need to be adjusted to the rest of the other schools in other regions in the country in order to be generalized. So, yes generalization of findings to the whole Namibian country will be applicable and will be done. Generalization of the study to Africa, the answer will be no because the model need to be adapted according to the countries culture and needs which need to be country specific. The model needs to be benchmark and due to constraints in time and resources implementation and evaluation of the model will not be completed now at the specific point in time.

Delimitation of the study

The study was carried out solely in Kavango region and not in any other regions of the country. The model needs to be benchmark and due to constraints in time and resources
implementation and evaluation of the model will not be completed now at the specific point in time.

Methods

Study design

A cross-sectional analytical study was conducted using mixed methods - quantitative approaches among 350 school learners (grade 6 to grade 12) and 150 school dropout adolescents (aged 12 to 19 years). For the qualitative approaches 15 school learners and 25 teachers went through an in-depth interview. In total a sample of 540 was utilized.

The stratified random sampling techniques were used in the selections of the circuit and the schools. Structured questionnaires were used in face-to-face interviews, and in depth interviews were conducted among the key informants (teachers).

Study population

The study population groups were in three fold, the school learners in primary or secondary school, the teachers at different schools and the adolescent’s in the community who had dropped out of school.

Target population

The first target population were the school learners falling within the age group of between 12-19 years, in public primary and as well secondary schools in Kavango region. The second target population were teachers at different schools teaching Life Science, Life Skills, Biology or Natural Science. The third target populations were the adolescent’s in the communities who had dropped out and or never went to school and falls within the age group of between 12-19 years.

Sample size

A sample size of 500 adolescents was determined using Epi-info version 7 considering at least 95% significance level for the quantitative approaches. For the qualitative approaches 15 school learners and 25 teachers went through an in-depth interview. In total a sample of 540 was utilized.

Data collection: preparing the field

For both the schools and the community: Prior telephonic arrangements were done with the school principals and councilors regarding the purposes of the visit, date and time for the visits to Kavango Region and to the specific schools.

Data collection procedure at schools

The researcher reported at the principal office whereby the researcher submitted all written proof of letters for permission as obtained from the different institutions.

The principal accompanied the researcher to the Laboratory classroom or Life Skills class where the data collection took place. At some schools, the teacher responsible for Life Science, Life Skills, Natural Science or Biology accompanied the researcher to the Laboratory classroom or to the Life Skills class where the data collection took place. At some instances the learners waited at the mentioned classrooms and at other schools learners were called for the data collection once the researcher turned up.

The researcher was provided in advance with the class list of the specific grades, and carried out simple random selection. At the Primary schools: all learners from the different grades 6-7 came to the one central classroom, which was the Life Skills class’s room. At the Secondary schools: all learners from the different grades 8-12 came to the one central classroom, which was the Life Skills, Biology or the laboratory classroom.

After explaining the aims of the study and obtaining permission from the learners and teachers. Individual in-depth face-to-face interview was carried out with the teachers offering
at school the abovementioned subjects and the selected learners. The teacher’s in-depth interview pointed out their challenges, experiences and shortcomings with the implementation of the curriculum. The data collected by the main researcher focused on reproductive issues, whether it is included and discussed comprehensively or partly in the abovementioned subjects.

**Data analysis**

Subthemes were identified and discussed which is as follows:

**Results from in depth interview with teachers and principal**

1. What’s your sex?
   - 40% (10) of the respondents were males and 60% (15) were females.

2. What’s your age?
   - Mean age of the responses was 36 years and the age range was between 23-49 years.

3. What are your highest qualifications?
   - 60% (15) of the teachers in possession of a diploma; followed by 32% (8) with a degree; next in line those teachers with a certificate with 8% (2), those with a Master’s Degree 4% (1) and 0% with doctoral degree.

4. Which grade(s) are you currently teaching?
   - The range of the grades been taught, grade 4 - 12. Most of teachers teach more than one grade.

5. What subjects are you teaching?
   - 36% (9) of the respondents teach Life Skills; similarly 28% (7) teach both Life Science and a 28% (7) Natural Science respectively; 24% (6) teach Biology and 8% (2) teach any other subjects.

6. How long have you been teaching this subject?
   - Mean period of teaching was (7) years, which makes out 28%. Minimum years of teaching2 years (8%) and maximum years of teaching was 18 years (72%).

7. Are you comfortable in teaching this subject?
   - 96% (24) of the respondents indicated yes and 4% (1) indicated no.

8. Do your school curriculums include the following topics: Respondents were having option to circle 3 responses?
   - 96% (24) indicated that HIV/AIDS is included in their curriculum and as well; 92% (23) pointed out Sexually transmitted diseases; similarly 84% (21) indicated Contraceptives and as well 84% (21) Pregnancy respectively; followed by = 52% (13) for Sex education; and 20% (5) for others.

9. How often do you teach these abovementioned topics?
   - 40% (10) of the teachers indicated once in a month; 36% (9) indicated as weekly; 8% (2) indicated Three times in a week; and 2% (1) twice in a month and 0% as Twice in the week respectively.

10. How will you describe the involvement/participation of your learners during your classes?
    - Teachers responded that 68% (17) were fully participating; 28% (7) partly participating; and 2% (1) were not participating at all.

11. How will you explain the attitudes of the learners in your class as you teach these abovementioned topics?
    - 68% (17) of the learners were having an Opened attitude; 32% (8) were Shy and; 0 % were Ashamed.
12. Did you attend workshop/training in the abovementioned topics?
52% (13) of the respondents stated NO that they have not attended workshop/trainings in
this regard while 40% (10) stated Yes, they did attend workshop/trainings.

13. How often do you attend workshop/training in the abovementioned topics?
48% (12) pointed out once a year; 40% (10) pointed out None/not yet invited; 2% (1) indi cated once in six month and 0% indicated for Quarterly and as well every second year.

14. Are you involved in the curriculum development of the abovementioned topics?
80% (20) of the respondents indicated No while 16% (4) indicated yes for being
involved in the curriculum development.

15. Is there a platform where you can share your input/suggestions regarding the
curriculum of the abovementioned topics?
48% (12) of the respondents indicated No while 44% (11) indicated Yes.

16. In your opinion do the curriculums address in full the abovementioned topics?
76% (19) of the respondents indicated Yes while, 24% (6) indicated No.

17. What are the main factors of high adolescent pregnancy rate in Rundu?
 respond ents were having option to circle 3 responses. 80% (20) Lack of parental supervision; 76% (19) Poverty; 64% (16) Lack of knowledge and communication skills to talk to their children regarding sex & contraceptives; 44% (11) Parental irresponsibility; 28% (7) Lack of sex education; 16% (4) Very low contraceptive utilization and 0% Domestic violence.

18. What are some of the effective measures in preventing adolescent pregnancy?
64% (16) Talks in schools; 56% (14) Reproductive Health education and 56% (14) Family planning education respectively; similarly Talks at community events and Educational films on Health & Family planning with 52% (13) and Talks on radio 24% (6).

Main themes and subthemes were identified which is illustrated in Table 1.

<table>
<thead>
<tr>
<th>Main themes</th>
<th>Sub - Themes</th>
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| 1. Challenges for learners in grasping and understanding the concept on reproductive health. | • Poverty – early marriages, bribe from men.  
• Culture – uncomfortable and shy to talk about sex.  
• Learners not patient to wait for the right time to engage in sex.  
• Learn something at school just for examination purposes.  
• Different reactions of learners:  
  • Shyness  
  • Loses concentration  
  • Lack of interest  
  • Lack of participation  
  • Peer pressure  
  • Lack of family planning.  
  • Lack of health education.     |
| 2. Identified cultural barriers on reduction of the prevalence of adolescent pregnancy. | • Early marriages  
• Give birth while young to test fertility.  
• Sex matters taboo.  
• Religious beliefs do not allow girls to talk about sex contraceptives.  
• In some cultures contraceptives are completely banned.     |
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<tbody>
<tr>
<td>Parents should have very strict rules at home to prevent early marriages.</td>
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<tr>
<td>What is taught at school might be against their religion.</td>
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<tr>
<td>Must have an open relationship with parents.</td>
<td></td>
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<tr>
<td>They say we must produce more to replace fore parents.</td>
<td></td>
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<tr>
<td>Producing a lot of children is an asset.</td>
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</table>

### 3. Possible mechanisms, which could be put in place at local levels to prevent pregnancies.

**The school set up**
- Schools should be provided with contraceptives (condoms) from the MOHSS, sex education should be taught in schools as a subject.
- More life skills teachers to implement sex education, rights and responsibilities related to relationship.
- Sexual health education from primary school to secondary schools should be taught throughout the year.
- Introduce boys and girls to clubs that talks about teenage pregnancy we they come together sometimes in a week to discuss about pregnancy issues and the risks associated with it.
- Weekly have meetings with girls to educate them on health education having talk meetings with girls once per term or once per month.
- No special treatment must be given to pregnant girls.

**Inter and intra sectorial collaboration**
- The Ministry of Health should start getting involved by constantly providing education and awareness at schools.
- Encourage learners to stay away from sex and use control/practice safe sex.
- Parents involvement, participation in education health in schools, and receive trainings.
- Members from different department and gender should come and give information to our learners about how to prevent them self - not to get pregnancy.
- Teachers should also teach the learners the consequences effect of becoming a father or mother at an early stage.
- Not to allow pregnant girls to attend classes. They must choose between school and domestic responsibilities. Strict rules to forbid sexual activities.

**In the community**
- The community should be address by people from the hospital about the disadvantage & advantage of pregnancy.
- Health workers to talk to community parents on regular basis.
- Community members and parents should be
encouraged to talk freely about teenage pregnancy, health, reproductive and sex education.

**Positive parenting and reproductive health**

- Parents should also be educated on how to help their children, education should start at home.
- Strong parental supervision and control over the socialization of their children, and the overwhelming love for new technological appliances -Parents must continuously monitor and supervise what their girl-child do thoroughly and create the atmosphere of trust between mother, father and daughter.
- Establish community taskforce against adolescent pregnancy.
- NAPPA should educate the community on the danger of early marriage and exchange of sex for economic gains and poverty.
- Organization must reach people in the community to do awareness about it.
- Severe punishment must be given to the males that impregnate adolescents.
- Health specialists to gather and sensitize community about these issues regularly.
- Girls who have children must be encouraged to get a job and take care of their children for a healthy upbringing.
- Supervision and strict rules with punishment measures.

<table>
<thead>
<tr>
<th>Main themes and subthemes were discussed which is as follows:</th>
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<tbody>
<tr>
<td><strong>Discussion of themes and sub themes</strong></td>
</tr>
<tr>
<td>1. Challenges for learners in grasping/ understanding the concept on reproductive health.</td>
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<tr>
<td><strong>Subtheme 1</strong></td>
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<tr>
<td>• <strong>Poverty – early marriages, bribe from men.</strong></td>
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<td>Poverty is one of the main reasons for early child marriages. Where poverty is acute, giving a daughter in marriage allows parents to reduce family expenses by ensuring they have one less person to feed, clothe and educate.</td>
</tr>
<tr>
<td>Glinski, Allison, Sexton, and Meyers, (2015) stated that more than 50% of girls from the poor families in the developing world, married as children. Girls from poor families are three times higher to get married before the age of 18 as girls from wealthier families, UNFPA (2013).</td>
</tr>
<tr>
<td>• <strong>Culture – uncomfortable and shy to talk about sex.</strong></td>
</tr>
<tr>
<td>According to Archual, (2014) culture have a huge influence on people not to talk about sex Namibia is no exceptional. Sex happens everywhere, all the time, all around the world; and in many other parts of the world, it can also be freely and openly discussed without fear of social taboo. In places like the Netherlands, Germany, and France, sex is considered to be, both in conversations at home and in schools, a natural part of a healthy relationship. It is regarded as an act of love and intimacy—something that can definitely be talked about. In cultures where individuals can talk openly discursively, about their sexual desires, it’s easier to cut through the murkiness we’ve created around consent and get to that point of common understanding</td>
</tr>
</tbody>
</table>
Archual, (2014). One danger involved with a culture that shames sex is disrespect among peers. As pointed out by Oliver, (2016) regardless of your personal sexual choices (waiting for marriage, not waiting, partaking in group sex, etc.), orientation, and preferences, it's important to respect other people's sexuality.

In Malawi, Limaye, (2012) says that parents are shy to talk about sex while there is a need to increase efficacy to talk about sex and protective sexual strategies... cultural systems and media as sources of information on HIV/AIDS can lead to troubles (about sex). ... Elders also felt uncomfortable talking about sex.

- **Not patient to wait for the right time.**

  As illustrated by Schwenkler (2016), today, let’s get a few things straight: (USAID, 2011). When the time is right, your person will come into your life (please don’t kick me in the face, K thanks?), and (MoHSS, 2013). When your person does come into your life, (s) he will not save you, complete you, nor make you whole.

- **Learn something at school just for examination purposes.**

  Students say that they only learn hard to pass the examination.

  Tailor, (2016) mentioned that students are working harder than ever to pass tests but school allow no for true learning in the Socratic tradition. ... In point of fact, it is more than just dream. My real classroom ... If schools are to fulfill their purpose, they cannot afford to neglect this philosophical dimension of learning.

- **Different reactions of learners:**

  Students can show different reactions, they are all the time under peer pressure as well of suffering under family problems. Some can go to the extend to commit crimes as well as suicide.

  - Shyness
  - Loses concentration
  - Lack of interest
  - Lack of participation
  - Peer pressure
  - Lack of family planning

  According to UNFPA, (2013) access to safe, voluntary family planning is a human right. Family planning is central to gender equality and women’s empowerment, and it is a key factor in reducing poverty. Yet some 225 million women who want to avoid pregnancy are not using safe and effective family planning methods, for reasons ranging from lack of access to information or services to lack of support from their partners or communities. Most of these women with an unmet need for contraceptives live in 69 of the poorest countries on earth.

  Alexandrescu, Tuchendria, conducted a baseline examination (1999), in which data were collected from 279 students who attended five high schools and six post high schools from the Moldavia cities, Iassy, Piatra-Neamt and Bîrlad. Students were asked to complete a self-administered questionnaire, and a 97.5% response rate for the whole survey was achieved. Differences between answers were tested using chi-square test from 2x2 table and median test, average. A P-value <0.05 was considered to be significant. The study established that knowledge; attitudes and practice vary by age (adolescents (< or =19y) vs. young people (>19y)) and education (high school vs. post high school) in some regards. At the aggregate level, regarding knowledge, a statistically significant difference was found between adolescents and young people; but no statistically significant difference was found between high school and post high school students. Apart from lack of basic knowledge the study confirmed that the survey participants hold many false beliefs regarding contraceptives. People who were sexually active were no better informed than the rest of survey participants,
but they had a significantly higher percentage of positive attitudes regarding effectiveness of pills and withdrawal.

Table 2. Prevalence of adolescent pregnancy in schools per term in Kavango region

<table>
<thead>
<tr>
<th>Total pregnant adolescents per term</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3 cases per term</td>
<td>0.4% - 0.6%</td>
</tr>
<tr>
<td>5-7 cases per term</td>
<td>1% - 1.4%</td>
</tr>
<tr>
<td>8-10 cases per term</td>
<td>1.6% - 2%</td>
</tr>
<tr>
<td>11-19 cases per term</td>
<td>2.2% - 3.8%</td>
</tr>
</tbody>
</table>

The pregnancy rates under adolescent in schools are increasing in Namibia. The abovementioned cases are those cases observed by the teachers and others might go unnoticed. Despite that we are having three school calendar terms; the above mentioned cases are examples of different cases which might be experience from one school term to another and do not necessary correspond to a specific school term.

Figure 1. Prevalence of adolescent pregnancy in schools per term in Kavango region.

Results from in depth interview with adolescents.

Section 1: Demographic information

Age: Mean age of the participants was 16 years and the age range was between 12-19 years.

Sex: 40% (6) of the participants were males and 60% (9) were females.

Grade: The grades of the participants were as follow: 53.3% (8) for Grade 11; 26.7% (4) for Grade 9 and 20% (3) Grade 8.

Living: 46.7% (7) live with both parents, 20% (3) live in the Hostel, 13.3% (2) live with their Father; 6.7% (1) live both Mother and the Aunt, and as well with the Grandmother.

Section 2: Knowledge and perceptions about adolescent health-care service

1. Which health facility did you visit, clinic or hospital?
80% (12) of the participants visited public health clinic and 6.7% (1) visited the hospital, 6.7% (1) visited private doctors and 6.7% (1) private clinics respectively.

Most of the participants prefer visit the public health clinics. They are not so expensive as the private doctors and the private clinics. With the private doctors you need to make an appointment and must have a medical fund which most of the parents don’t have? Participants can visit public health facilities any time with no appointment.

2. Which type of service did you go for?
Adolescents visited the health facility for the following services: Stomach pain; Headache and flu; Monthly check-up for tonsils; Eye test; Stitching of wounds; Asthma treatment;
Activities of health services include identification of health problems, treatment of common ailments and injuries, referrals, growth monitoring, checkups, monitoring of outbreaks, vaccinations and referrals for appropriate treatment (Trainers of Trainers Manual on School Health, 2015).

3. Did you receive the health-care services that you went for?
100% (15) of the participants pointed out that they received services accordingly.

4. Did you see informational materials for adolescents, including video or TV, in the waiting area?
53.3% (8) stated yes while 46.7% (7) stated no there were no information about adolescents, but there were TV’s available.

A lack of comprehensive education in school, home or youth centers may mean that adolescents do not acquire the necessary information (Trainers of Trainers Manual on School Health, 2015).

5. Did you see a display, which mentions that services will be provided to all adolescents without discrimination?
33.3% (5) stated yes while 66.7% (10) stated no, but they were just some magazines of health, cars and insurance books. The MOHSS of Namibia have a program of Adolescent Friendly Services, which is incorporated, in 6 regions of Namibia to improve health services for the adolescents.

6. Did you feel welcome and safe at the health facility? 86.7% (13) pointed out yes while 6.7% (1) pointed out somehow and feel at home respectively.

Health workers receive training in adolescent Friendly Health Services and receive Marks. The clinic staff, administration staff and the cleaners need to be friendly towards the adolescents (Adolescent Friendly Health Services, 2012).

<table>
<thead>
<tr>
<th>Main Theme</th>
<th>Sub - Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Environment:</td>
<td>• Environment: Positive: Atmosphere is calm, Very clean including smell. People come and make it dirty. Clean toilet, smelled good with hand sanitizer Negative: unhygienic smell and accommodates many people leading to infection spread. Waiting room was full of unhygienic people.</td>
</tr>
<tr>
<td>Attitude:</td>
<td>• Kind, helpful, respectful and happy</td>
</tr>
<tr>
<td></td>
<td>• Professional</td>
</tr>
<tr>
<td>Health consequences of getting married at a young age:</td>
<td>• Abused by older partner</td>
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<tr>
<td></td>
<td>• No support</td>
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<tr>
<td></td>
<td>• Risk of getting infected</td>
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<td></td>
<td>• Drop out of school</td>
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<td></td>
<td>• Premature death</td>
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<td></td>
<td>• Stress</td>
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<td></td>
<td>• Suicide</td>
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<tr>
<td></td>
<td>• Financial problems</td>
</tr>
<tr>
<td></td>
<td>• Death</td>
</tr>
<tr>
<td></td>
<td>• Responsibility too much</td>
</tr>
</tbody>
</table>
Contraception methods:
- Condom
- Femidom
- Cervical cap
- Rhythm method
- Withdrawal and abstinence

Waiting time:
- 5 – 30 min = 8
- 30 – 1 hour = 5
- 2 – 3 hours = 2

Involvement of adolescents quality healthcare:
- Life science and biology teachers should teach learners to control themselves and the consequences
- Should abstain
- Young people carrying condoms

Discussion of findings

Physical environment
Some adolescents see the environment clean with a good smell while others are negative that the environment is dirty and does not smell hygienic.

Attitude
Most of the time the public complain about the health workers attitude. You read it in the newspapers on the radio. The adolescents have positive comments professional.

Health consequences of getting married at a young age
The adolescent know the consequences. They mentioned of getting married early.
The adolescents mentioned a long list like no support; Risk of getting infected; Drop out of school; premature death; Stress; Suicide; Financial problems; Death
According to the UNFPA (2013) delay of child bearing to experience maternal illness, miscarriage, stillbirth and neonatal death. Babies of teenage mothers are born with low birth weight and experience health development problems. Adolescent pregnancies can lead to financial burden to society.

Contraception methods
Contraceptives is called birth control, are usually used to prevent pregnancies. Many young people are sexually active and need to have more information regarding the different contraceptive methods that is available to them. Counseling dialogue between the adolescent and members of the Health-care team should be structured in making a decision that is informed, voluntary and appropriate to the adolescent’ circumstances (Trainers of Trainers Manual on School Health, 2015). Adolescents may also be less likely to possess the motivation and skill to use a contraceptive method correctly. Even when adolescents have correct information about contraceptives, this will not guarantee that responsible sexual behavior will follow (Trainers of Trainers Manual on School Health, 2015).

Waiting time
The waiting time at health facilities is long due to staff shortage. Health workers are looking for greener pastures and financial freedom. The consequences of stigma and discrimination are wide-ranging. Some people are shunned by family, peers and the wider community while others face poor treatment in healthcare and education settings, erosion of their human rights and psychological damage (Trainers of Trainers Manual on School health Services, 2015). The respondents waiting time was as follows:
- 2 – 3 hours = 13.3% (2); 30 minutes-1hour =33.3% (5); 5-30 minutes =53.3% (8).
Involvement of adolescent’s quality healthcare

Most of the time adolescents are neglected, because health workers seen them as healthy people. In Namibia the Ministry of Health and Social Services have started with the Adolescent Friendly health services to accommodate the adolescent to receive excellent health services. Previous experiences with health-care workers or with health-care delivery sites are likely to influence the use of contraceptives services when the need arises (Trainers of Trainers Manual on School Health, 2015).

Recommendations from teachers to prevent adolescent pregnancies

Effective measures in preventing adolescent pregnancy should be enhanced and strengthen at schools.

- Sex education should be implemented in schools as a subject; schools must always put the topic of pregnancies on their agendas during parent meetings.
- The policy on family planning should make provision to allow girls older than 14 years to receive contraceptives for protection because most are already sexually active by age 13.
- Build self-confidence and respect, adolescent must realize their value and make right choice in their lives.
- By forcing them to leave school immediately once they are pregnant, learners to be more responsible and take care of themselves.
- The Ministry of Health should visit schools once in a while to teach young girls the importance of family planning/contraceptives.
- If the minds of people can be changed from how they lived in the past to what is happening now then we can be sure that our children’s future will be different.
- Contraceptives have disadvantages so I would recommend schools and community teachings on sex education.
- Reduce alcohol and drugs abuse among parents and their children. School rules and policies such as those regarding the use of alcohol, tobacco and other substances can have a powerful effect on reinforcing health messages or practices in the school (Trainers of Trainers Manual on school Health).
- More teaching on reproductive health, parents must be taught to support their children.
- Educate young ones to abstain from sex and to make them aware of the risk involves.

Conclusion

The study found that the following aspects/factors: lack of parental supervision; poverty; lack of knowledge and communication skills to talk to their children regarding sex & contraceptives; parental irresponsibility; lack of sex education; very low contraceptive utilization were associated with adolescent pregnancy in Kavango region.

References


[8]. Department of Reproductive Health and Research World Health Organization. (2011).Adolescent Pregnancy. Avenue Appia 20, CH-1211 Geneva 27, Switzerland E-mail: reproductivehealth@who.int.


Promotion of Birth Preparedness Plan in Zambia: Impact of Male Partner Involvement on Childbirth Preparation as Strategy to Improve Maternal Health Care

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Abstract

Background: Every pregnant woman faces a risk of life-threatening obstetric complications. It is estimated that 398 women every year die in Zambia from pregnancy related complications out of every 100,000 live births. The primary cause of this high maternal mortality is lack of access to professional delivery care. A birth-preparedness package promotes active preparation and assists in decision-making for healthcare seeking in case of such complications. Examining the role of the family, particularly the husband, during pregnancy and childbirth is important to understanding women’s access to and utilization of professional maternal health services that can improve maternal health outcomes and prevent maternal mortality. However, in Zambia, the relationship between birth preparedness and decision-making on location of birth and assistance by skilled birth attendants in regard to male involvement is one subject that has not been studied. The purpose of this study was therefore to evaluate the impact of male partner involvement in childbirth preparation and contribute to the prevailing board of evidence on male involvement in addressing the high maternal mortality.

Methods: This paper was written through desk review of key policy documents, technical reports, publications and available internet-based literature. Primary analysis included studies from randomised controlled trials (RCT) whilst secondary analysis involved studies of non-randomised control trials, observational studies descriptive studies and key government reports.

Results: The study established that women have higher chances of delivering at the health facility and access skilled delivery care if they consulted and made the decision with their spouses. The proportion of women making savings for birth preparedness plan, including savings for emergencies and transport was very low without male partner involvement whereas involvement of male partners in ANC services increased the number of women attending antenatal care (ANC) services and resulted into a higher likelihood of expectant mother receiving not only skilled delivery services but also postpartum care.

Conclusion: This study provides novel evidence about male involvement during childbirth. The findings could have important implications for program planners, who should pursue all avenues and ways to involve husbands (male partners) in maternal health interventions and assess the effectiveness of education strategies targeted at husbands. Therefore, it should be viewed that examining the role of the spouses, during pregnancy and childbirth is important to understanding women’s access to and utilization of professional maternal health services that can prevent maternal mortality.

Introduction

In Zambia, a significant and big burden of women’s ill health in the childbearing group is due to pregnancy and childbirth related complications. These women are in the productive age group of 15 to 49 years. It is estimated that 398 women every year die from pregnancy related complications out of every 100,000 live births. The lifetime risk of a woman dying from a pregnancy related complication is 1: 20. This means that a pregnant woman in Zambia has a twenty times chance of developing and dying from pregnancy related complication (MoH, 2010). Over fifty percent of these maternal deaths are attributed to direct causes of postpartum haemorrhage, sepsis, obstructed labour, abortion, and eclampsia. Majority of these women who die from pregnancy related complications die either at home or on their way to the hospital. The largest contributor to this high number of
maternal deaths is the delay in deciding to seek maternal and obstetrical care at both household and community levels. This delay by women in deciding to seek medical and obstetrical care even in an event of pregnancy complications is associated with lack of advance planning and preparation for childbirth on the part of the expectant family (MoH, 2010).

In trying to address the problems associated with the mentioned community delay, numerous groups implementing Safe Motherhood Programmes have since made birth preparedness and complication readiness a common strategy. The understanding of this strategy is that it motivates the family to plan to have a skilled provider at every birth. If the woman and partner make the decision to seek care before the onset of labour and they successfully follow through, with this plan, the woman will reach the care before developing any potential complications during child birth. If decisions are made in advance and various alternatives identified, regarding where to go, how to get there and how it will be paid for, delays can be avoided because the family will be prepared and risks to the mother and / or the baby can be reduced (JHPIEGO, 2004).

A birth preparedness and complication readiness plan include identification of following elements: knowledge of danger signs, the desired place of birth, the preferred birth attendant, the location of the closest appropriate care facility, funds for birth-related and emergency expenses, a birth companion, support in looking after the home and children while the woman is away, transport to a health facility for the birth, transport in the case of an obstetric complication and identification of compatible blood donors in case of emergency. Birth Preparedness reduces delays in receiving appropriate care.

Zambia among other African countries has gender power relations skewed in favour of men. Men yield a lot of power in the home and society and are regarded as the key gate keepers to decisions relating to issues of reproductive health and childbirth. It is basically men who decide when to have children and how many children a couple should have and too often these decisions may be devoid of partner consultation (Nzioka, 2001).

The role of men in the reproductive decisions of their partners has always been recognized as a factor that could either promote or hinder women's participation in Safe Motherhood programmes. Men are considered as key decision-makers in maternal and newborn care-seeking behaviours. They need to understand the needs, risks and danger signs of pregnancy, childbirth and postpartum periods to support women. Promotion of the role of men as partners and fathers is essential for their involvement and support. Yet, childbirth preparation programmes in the district are traditionally designed to interact with women and generally do not address men.

In the last decade, attention to the role of men in reproductive health has drastically increased. It is now widely recognised that men are key agents where a wide range of sexual and reproductive health practices are concerned (Brujin, 2004). Literature has shown that healthy outcomes of pregnant women and their newborns, whether positive or negative are determined largely by decisions made by the woman’s partner and the family and within the household. Increased involvement by men in fatherhood can benefit men, as well as women and children, in the form of better health. For example, men can give important psychological and emotional support to the woman during pregnancy and delivery. This, in turn, can reduce pain, panic and exhaustion during delivery (WHO, 2010). Men’s involvement in maternal and child health programmes can reduce maternal and child mortality during pregnancy and labour by being prepared for example, for obstetric emergencies. The increased involvement in fatherhood can also benefit men’s own health and wellbeing. For example, men who have been recognised in their new position as fathers and experienced emotional support during the pregnancy have better physical and mental health. Ntabona (2001), gives an assumption that for all the steps leading to maternal survival defined in the mother- baby package, there is always a man standing by the side of every woman knocking at the gate before during and after each pregnancy.

Reproductive health practitioners have also long recognised that the failure to target men in programmes has weakened the impact of reproductive health programmes since men significantly influence their partners’ reproductive health, decision making and use of health resources (WHO, 2001). Men who are educated about reproductive health issues are more likely to support their partners in contraceptive use; they are likely to use contraception themselves and demonstrate
greater responsibility for their children (Mehta, 2001). Furthermore, it is argued that one of the challenges for men’s participation in reproductive health was the untapped potential to help reduce maternal mortality, as there was clearly a potential for much greater role of men in safe motherhood initiatives. Men could help in safe motherhood by providing resources, and transport for ANC and accompany women, by arranging for skilled attendance during delivery, by knowing the danger signs of complications and avoiding delays in decision making and transport; by ensuring good nutrition, rest and alleviating women’s workload during pregnancy and postpartum as well as related physical, financial and emotional support. It is this regulating influence that would significantly improve mother’s access to maternal health. In birth preparedness, it would result into availability of finances, transport in emergency situations and could bring an end to community based delays in birth preparation plan (Nzioka, 2001). Although male involvement in safe motherhood, may appear to be an easy topic (and may appear easy in practice to roll out, yet difficult to achieve), it is still a new topic compared to other areas of sexual and reproductive health such as family planning, prevention and management of STI, including HIV, and prevention and management of sexual and gender based violence (Mehta, 2001).

In Zambia, Much of the publications are based on the role of men in the prevention of HIV/AIDS transmission and sexually transmitted illnesses. There are no much published research papers on the role of men in childbirth preparation that have been done in Zambia that could be referred to and cited. One study (Groenewold et al, 2000) was done in one Provincial Capital (Ndola) of Zambia and looked at gender and the roles of men in reproductive health. The findings were that men’s dominance in sexual matters was a barrier to women’s health protection behaviour and that women’s empowerment in these matters was not very meaningful unless accompanied by related focus on change in male attitudes and behaviour (Groenewold et al, 2004). The study observed that men play an important role in the reproductive health of women; either within marriage or consensual union, or within sexual relations of casual or commercial nature. The involvement of men covers issues like avoiding unwanted pregnancies, and the use of family planning methods, transmission of STI’s, support in seeking care, gender based violence and power, communication and decision making in sexual and reproductive health matters (Groenewold et al, 2004). Men are thus seen as important representatives of their partner’s social environment, and through their behaviour and expectations the gender system exerts influence on the reproductive health of women. They are socially and economically dominant especially in most African societies; they exert a strong influence over their wives, determining the timing and conditions of sexual relations, family size, and access to health care. This situation make men critical partners for the improvement of maternal health and reduction of maternal mortality (Iliyasu et al, 2010).

However, despite all these explanations on how companionship during labour can improve reproductive health and delivery outcomes, including a reduced need for caesarean section, much of these efforts nevertheless, do not yet offer clear cut guidelines on how far the partner or husband’s participation can go. In spite of the recognition, overt programmatic action has not been taken to find ways to encourage their involvement as partners in Safe Motherhood programmes beyond the provision of condoms and information (Wynter and Hamilton, 2001). It has also been observed that male involvement discussions had developed mainly around contraceptive use, STDS and HIV. Comparatively little research and few programmes focus on men’s relationship to maternal health (Horstman, 2004).

This desk review would therefore add on to the literature and knowledge on the impact of men in childbirth preparation as the country strives towards achieving the vision of ensuring that no woman dies whilst giving birth (MoH, 2010). This knowledge can become a viable planning asset for the organisations and programmes that are currently striving to promote safe motherhood practices within the country and seek to accelerate the reduction of mothers dying from childbirth complication.
Objectives

The primary aim of this review was to evaluate the impact of male partner involvement in childbirth preparation as a strategy for the improvement of maternal health care and reduction of maternal mortality. The objectives were fourfold: 1) To determine the impact of male partner involvement in childbirth preparation on improving maternal health care, 2) determine areas of male partner involvement in childbirth preparation that has impact on improving maternal health care, 3) provide evidence based literature of the impact of male partner involvement in childbirth preparation as a strategy to improving maternal health care, 4) to identify the knowledge gap in the locally available literature of the significance of male partner involvement in childbirth preparation in reducing maternal mortality.

Methods

This paper was written through desk review of key policy documents, technical reports, publications and available internet-based literature.

Types of studies

Primary analysis included a few available randomised controlled trials (RCT) on the subject under study. Secondary analysis included non-randomised control trials, observational studies, descriptive studies and key government reports when very few RCTs were found. In order to be included in the study, the subject of male partner involvement in maternal health had to be indicated both in the title and abstract of the study paper. Reports of interventions had to be published in a book, key government publications or peer-reviewed journals and be targeted at adult men as a distinct group. Studies that reported interventions were included only if they contained evaluation data. However, in several cases, because of the lack of studies, reports were included that contained only descriptive information because they illustrated an area that was a particular focus for work with men in either reducing adverse outcomes of pregnancy or that aimed at improving pregnancy outcomes.

Type of participants

Comprised of married men. Only studies that focussed on male partners’ involvement or participation in safe motherhood with preference to childbirth preparation and complication readiness were included for analysis. Studies that focussed on male partner involvement in other reproductive health related areas like HIV and STI prevention were excluded. These were excluded because they were considered to have no direct effect on maternal mortality reduction. The studies considered for analysis were purposely selected as they were considered to have the views related and necessary to answer the research question.

Types of intervention/issue

These included health educational intervention (partner education on elements of birth plan strategy) with husbands (partners), participation in birth preparation plan including provision of transport or funds for emergencies, selecting a birth location, identifying the location of the closest appropriate care facility, identifying a skilled attendant, identifying a companion for birth and for emergency and having adequate supplies for birth. The husbands were educated about their role in nutrition and health of their wives during pregnancy and their responsibility in the subsequent child rearing. They were explained in detail the physiology of pregnancy, complications of pregnancy and the possible ways and means of preventing the complications. They were also told to encourage their wives to attend the antenatal clinic of the centre as frequently as possible.

The inclusion and exclusion criteria

The table below summarises the criteria used for including and excluding the evidences considered for this study
Table 1. The inclusion and exclusion criteria

<table>
<thead>
<tr>
<th>Population</th>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>Active male partner</td>
<td>Lone males (unmarried)</td>
</tr>
<tr>
<td>Interventions</td>
<td>Involvement in childbirth plan</td>
<td></td>
</tr>
<tr>
<td>Comparative</td>
<td>Usual female partner lone</td>
<td>No comparative intervention</td>
</tr>
<tr>
<td>Intervention</td>
<td>involvement (non male involvement)</td>
<td></td>
</tr>
<tr>
<td>Outcomes</td>
<td>Joint birth plan making</td>
<td>Un specific (not numerically / statistically determined) maternal utilisation outcomes</td>
</tr>
<tr>
<td></td>
<td>Skilled ANC utilisation outcomes</td>
<td></td>
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<tr>
<td></td>
<td>Skilled delivery utilisation outcomes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal and neonatal mortality outcomes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Knowledge of maternal health</td>
<td></td>
</tr>
<tr>
<td>Types of studies</td>
<td>Quantitative- RCT</td>
<td>No inclusion of evaluation data.</td>
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<tr>
<td></td>
<td>Qualitative studies</td>
<td>Descriptive information not illustrating an area that was a particular focus for work with men in either reducing adverse outcomes of pregnancy or that aimed at improving pregnancy outcomes. Reports of interventions not published in a book, key government publications or peer-reviewed journals.</td>
</tr>
<tr>
<td></td>
<td>Systematic reviews</td>
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<td></td>
<td>Key government reports</td>
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</table>

Types of outcome measures

Birth preparedness was assessed based on the number of arrangements a couple had made, including (i) saving money for delivery, (ii) arranging for a blood donor, (iii) arranging for transportation to delivery and (iv) making an emergency plan. Health care utilization indicators included whether a woman received the recommended ANC visits, delivered in a health institution, had a skilled birth attendant or attended a postpartum visit at health facility within 2 weeks of delivery. Birth outcome indicators included maternal mortality and morbidity.

The search strategy

A literature search of online databases including Medline, Cochrane Library, Cihnal, Trip index and National Research Register was conducted. When this search failed to yield more than a handful of published accounts, the search strategy was widened to include Google Search engine. The search was based on a series of search terms and topics suggested by the substantial literature around men’s involvement in maternal health and reproductive health. These terms and topics included men’s role in childbirth preparedness and maternal death prevention, men’s role in the avoidance of unwanted pregnancies, men’s role in the promotion of safe motherhood and men’s involvement in fatherhood.

Focused question

The focused question that directed the search strategy of this study is stated below:

“Does male partner involvement in childbirth preparation have an impact on improving maternal health care?”
Methodological quality assessment

Methodological quality assessment was conducted to assess the risk of bias in included studies. Study quality assessment was guided by analysis of study designs, the level of details required in the assessment, the ability to distinguish between internal validity (risk of bias) and external validity or generalisability (Centre for Reviews and Dissemination, 2008). For the RCT and Qualitative papers, quality assessment was done with the help of Critical Appraisal Skills Programme (CASP) tools (Public Health Resource Unit, 2006) for the step by step critical appraisal of the published evidences. Evidences from government and other official publications were evaluated for their credibility and validity considering their sources of publications.

Results of the search strategy

Results of the search strategy are presented in details in appendix 1.

Data extraction

Data extraction was done using the data extraction form. Full details of the data extracted are shown in appendix 4.

Results

The study results are presented in accordance with the aim and the objectives of this study: impact of male partner involvement in childbirth preparedness, maternal health care utilisation and birth outcome indicators included maternal mortality and morbidity. A high proportion of papers reviewed however, produced descriptive statistics as opposed to inferential statistics. Much of the results of this study therefore were mainly based on the descriptive statistics.

Impact of male partner involvement in childbirth preparedness

Analysis of study results took into account the fulfilment of the elements of the birth plan and included emergency savings and joint decision making.

Joint decision making

Kakaire et al (2011) in a study; Male involvement in birth preparedness and complication readiness for emergency obstetric referrals in rural Uganda found that the final decision regarding location of birth when made by the woman herself was 36% and the woman with spouse (56%) and the woman with relative/friend (8%). The relationships between birth preparedness and women decision-making on location of birth in consultation with spouse/friends/relatives and choosing assistance by SBAs showed statistical significance which persisted after adjusting for possible confounders (OR 1.5, 95% CI: 1.0–2.4) and (OR 4.4, 95% CI: 3.0–6.7) respectively.

Complication and emergency readiness

Results from a study conducted by Iliyasu et al (2010) indicated that only a low proportion of women prepared for births without the involvement of their spouses. The results indicated that few women had made some savings for emergencies (19.5%) and transportation during labour (24.2%). Similarly, a Ugandan study done by Kakaire et al (2011) cited above also indicated a low percentage of women (44.3%) who made savings for any eventualities such as pregnancy complications.

Impact of male involvement in maternal health care utilisation

Skilled ANC attendances

Tweheyo (2010) in a study that looked at male partner attendance of skilled antenatal care in peri-urban Gulu district of Northern Uganda found that the level of couple attendance of skilled ANC was relatively high at 65.4% when males accompanied their wives for ANC services. This was contrasted from the results (42%) obtained in Omoro county in Gulu district of the same country were the level of couple attendance of skilled ANC was relatively low. The Guru District ANC attendance levels were observed to be even much higher than the national ANC level attendances (4%) reported by the nation’s Health Management information System (HMIS) of 2008.
Skilled delivery care utilisation

Nanjala and Wamalwa (2012) found that male partner’s level of education (P=0.0000) and occupation (P=0.0004) had an effect on his involvement in supporting the spouse to access delivery services from skilled attendants. They also found that the spouses’ age and access to delivery services from skilled attendants was statistically significant (P=0.000). Socio-cultural factors were also found to affect the involvement of male partners in supporting their spouses to access skilled delivery services. The study established no significant statistical difference between the age of a male partner and the type of delivery (skilled or unskilled) of the spouse (P=0.4259). In another study, Mullany et al (2006) found that Women who received education with their husbands were nearly twice as likely as control group women to report making adequate birth preparations. This study further established that educating women together with their partners resulted into a higher likelihood of women receiving skilled postpartum care compared to women who received education alone or no education at all. Additionally, a qualitative study done in rural Bangladesh that looked at husbands’ involvement in delivery care utilization in rural Bangladesh established that husbands whose wives utilized professional delivery care provided emotional, instrumental and informational support to their wives during delivery and believed that medical intervention was necessary. By contrast, husbands whose wives utilized an untrained delivery care at home were uninvolved during delivery and believed childbirth should take place at home according to local traditions (Story, 2011).

Impact of male involvement on maternal and neonatal outcomes

Evidences from literature reviewed studies indicated that male involvement in childbirth preparation came along with health promoting outcomes for the expectant mothers. A European study Fatherhood and Health Outcomes in Europe by WHO (2007) established that male involvement resulted into emotional and psychological support, reduced maternal and child mortality and resulted into an improved husband and Wife communication.

Discussions

Review of literature indicates that positive or negative health outcomes of pregnant women are largely determined by a woman’s partners and the family and within the household (WHO, 2010). Women and newborns need timely access to skilled care during pregnancy and child birth. Too often their access to care is impeded by delays: delays in deciding to seek care, delays in reaching care and delays in receiving care. These delays have many causes that include logistic and financial concerns as well as inadequate community and family awareness and knowledge about maternal and newborn issues (MoH, 2010). It is thus cardinal and important to understand men’s behaviours and their point of view because, given the gender asymmetry present in most societies, they still have a dominant role in reproductive health related decisions and outcomes. Studying men should not be seen as contradictory to studying women; but this shows us the other side of the coin and many mirror images that enrich the gender analysis (Pandelides, 2001).

Impact of male involvement on birth/emergency preparedness plan

Improving family awareness and knowledge about maternal and newborn issues is the main purpose of a birth plan/emergency preparedness plan. The birth plan/emergency preparedness plan aims among others things at achieving an increase in care seeking behaviour and is closely linked to actions to develop transport, finances and enhance support of men (WHO, 2003). Men could help in a birth/emergency preparedness plan by providing resources, transport for ANC and accompany women. They can help in arranging for skilled attendance during delivery, by avoiding delays in decision making and transport, ensuring good nutrition, rest and alleviating women’s workload during pregnancy, providing physical and emotional support (WHO, 2010).

The studies reviewed in this study indicated that there is a relationship that exists between birth preparedness and the woman’s decision making of location of delivery and choice of birth attendants. An expectant woman will in one way or the other find the necessity to consult members of the family or closer associates as regards the location of the delivery place and those that will
have to assist her deliver her child. Depending on the consultations made, she will either deliver traditionally in the house of the untrained birth attendant or at the health facility in the hands of the skilled birth attendant. The study by Kakaile and friends established that chances of her delivering at the health facility and access skilled delivery care are higher if she consulted and made the decision with the spouse (56%), 36% if she made the decision alone and only 8% if she consulted the relatives or friends (Kakaire et al, 2011). This finding has been acknowledged by literature that suggests that if the woman and partner make the decision to seek care before the onset of labour and they successfully follow through, with this plan, the woman will reach the care before developing any potential complications during child birth. If decisions are made in advance and various alternatives identified, regarding where to go, how to get there and how it will be paid for, delays can be avoided because the family will be prepared and risks to the mother and / or the baby can be reduced (JHPIEGO, 2004). This finding can also be a basis for the development of safe motherhood programmes that seeks to empower women and male partners with maternal health care information. It has long been established that men who are educated about reproductive health issues are more likely to support their partners in contraceptive use; they are likely to use contraception themselves and demonstrate greater responsibility for their children (Mehta, 2001).

Literature has shown that men could help in safe motherhood by providing resources, and transport for ANC and accompany women, by arranging for skilled attendance during delivery, by knowing the danger signs of complications and avoiding delays in decision making and transport; by ensuring good nutrition, rest and alleviating women’s workload during pregnancy and postpartum as well as related physical, financial and emotional support (Horstman (2004). This assertion has been proven to be true in this study. A 2010 Nigerian research done in the Northern community of Nigeria by Iliyasu and friends established that the proportion of women making savings for emergencies and transport was very low in proportion to low male involvement. The researchers found that majority of pregnancies were unplanned (96%). Only 32.1% of men ever accompanied their spouses for maternity care. There was very little preparation for skilled assistance during delivery (6.2%), savings for emergencies (19.5%) or transportation during labour (24.2%). The obstetric referrals are low and contribute significantly to maternal and neonatal morbidity and mortality. With this low male participation pregnancy and childbirth has been regarded as woman’s business (Kakaire, 2011). Arrangement for transport is important in the birth preparation plan. It has been established by research that men with their firm control of household resources may play a critical role in ensuring that a suitable fast transport is arranged in advance to quicken the movement of mothers to the health facility both in normal and emergency cases .The birth preparedness plan requires that the husband and wife (partner) jointly decide and arrange for transport long before time of delivery (Nzioka, 2001). In this situation, women would find it difficult to reach the obstetric referral sites and has the case is in Zambia many pregnant women faced birth complications delay in reaching decisions to seek skilled delivery care and as a consequence either died whilst labouring in their homes or died on their way to hospital whilst being transported on bicycles or ox drawn charts (MoH, 2010).

Impact of male involvement on skilled ANC attendances

This study has further shown that higher utilisation coverage for skilled ANC and skilled delivery services were obtained with increased male participation and vice versa. In the peri-urban Gulu district of Northern Nigeria a research conducted by Tweheyo (2010) found that involvement of male partners in ANC services increased the number of women attending ANC services to 65.4%. This was higher than the ANC attendances prevailing in the other areas of the Gulu district (42%) and far much higher than the national ANC coverage attendances (4%). Kakaire et al (2011) conducted a similar study in the rural area of the same country and also found low skilled ANC coverage (42.9%) where only a small proportion of husbands accompanied their wives for antenatal clinics (refer to appendix 6). The findings above agree with the findings in Malawi by Kalulanga et al (2011), that suggested that maternal health education interventions targeting both men and women have proved to increase knowledge in both men and women; increase health seeking behaviour among pregnant women; raise awareness and use of family planning (FP) in the
postpartum period, and also increased awareness of dual protection for STIs. The study also noted that men’s participation in antenatal education programmes had positive effects including increase in men’s reproductive health and child health knowledge, high utilization of antenatal care services by women.

Impact of male involvement on skilled delivery services

Mullany et al (2006) in a randomized controlled trial study done in Nepal, found that Women who received education with their husbands were also nearly twice as likely as control group women to report making more birth preparations. The study further established that educating women together with their partners resulted into likelihood of women receiving not only skilled delivery services but also postpartum care compared to women who received education alone or no education at all. Additionally, a qualitative study done in rural Bangladesh that looked at Husbands’ involvement in delivery care utilization in rural Bangladesh established that Husbands whose wives utilized professional delivery care provided emotional, instrumental and informational support to their wives during delivery and believed that medical intervention was necessary. By contrast, husbands whose wives utilized an untrained delivery care at home were uninvolved during delivery and believed childbirth should take place at home according to local traditions (Story, 2011).

A study by Kabakyenga, 2012 in Uganda highlighted the importance of having skilled birth attendants. They noted that assistance by skilled birth attendants (SBAs) is one of the strategies aimed at reducing maternal morbidity and mortality in low-income countries. Most of the causes of maternal morbidity and mortality are preventable and attributed to the three delays: delay to make a decision to seek care, delay to reach the place of care, and delay to receive appropriate care. Having a skilled birth attendant (SBA) at every delivery has been found to markedly reduce maternal morbidity and mortality in many countries that include Malaysia and Sri Lanka. Prompt decision-making is a prerequisite for reducing delay to seek care. Shija et al, 2011 in a study that looked at challenges and opportunities in reducing maternal mortality in Tanzania, further noted that more than 80% of maternal deaths can be prevented if pregnant women access essential maternity care and assured of skilled attendance at childbirth as well as emergency obstetric care. Most of maternal deaths are caused by factors attributed to pregnancy, childbirth and poor quality of health services. About 60% of maternal deaths occur during labour, delivery and immediate postpartum period. Fifty percent of these deaths occur within the first 24 hours of delivery. Comparatively, just like in Zambia, a woman in East Africa has 1 in 12 risk of dying due to pregnancy as compared to 1 in 4,000 in northern Europe. Most complications cannot be predicted; therefore timely diagnosis with skilled personnel is important to avoid introducing harm (Shija et al, 2011).

Nanjala and Wamalwa (2012), in their study: Determinants of Male Partner Involvement in Promoting Deliveries by Skilled Attendants in Busia, Kenya found increased access to delivery services from skilled attendants where husbands accompanied their spouses for delivery care services. This was statistically even more significant with male partners higher level of education (P=0.0000) and for occupation (P = 0.0004). There was also a higher relationship between spouses’ age and social cultural factors and access skilled delivery services. The study established that spouses’ age and access to delivery services from skilled attendants was statistically significant (P=0.000) and that Socio-cultural factors affect the involvement of male partners in supporting their spouses to access skilled delivery services. According to Zambian demographic health surveys (CSO, 2007), it was found that only 48% of the total women population was literate and that of men 72.7%. The low literacy levels of women and also of men have an impact on the level and quality of their decision making process and may determine how such individuals and families accept and take up health care services including Safe motherhood programmes.

Impact of male involvement on maternal and neonatal outcomes

Literature has shown that Health outcome of pregnant women and their new borns, whether positive or negative are determined largely by decisions made by the woman’s partner and the family and within the household (WHO, 2010). A 2007 WHO study: Fatherhood and Health
Outcomes in Europe revealed that increased involvement by men in fatherhood can benefit men, as well as women and children, in the form of better health. For example, men can give important psychological and emotional support to the woman during pregnancy and delivery. This, in turn, can reduce pain, panic and exhaustion during delivery.

The study showed that men’s involvement in maternal and child health programmes can reduce maternal and child mortality during pregnancy and labour by being prepared for example, for obstetric emergencies. The increased involvement in fatherhood can also benefit men’s own health and wellbeing. For example, men who have been recognised in their new position as fathers and experienced emotional support during the pregnancy have better physical and mental health (WHO, 2007). The influence of men in decision-making has been seen in studies of family planning, sexually transmitted infections and HIV, abortion, and infertility. However, there is a relative scarcity of information on men’s intentions and practices as they relate to pregnancy and childbirth, especially in Africa and Zambia in particular. Some have suggested that male partners act as obstacles when it comes to safe delivery care. However, male involvement during pregnancy and childbirth can lead to positive birth outcomes for the mother and child as well as a healthier marital relationship. A husband’s positive involvement can take many forms, including transporting his wife to a qualified provider, providing household money to make that visit, giving helpful informational support during pregnancy, and offering emotional support during labour and childbirth. This means that even though men may be discouraged from being involved in matters of pregnancy and childbirth, as may be the case in certain regions like South Asia, their beliefs and perceptions might influence where and how their wives give birth. The husband’s perception of social norms related to professional care is important to the type of advice and support he will give his wife during pregnancy and childbirth, which has important implications for the development of future maternal health interventions (Story, 2012).

Since gender inequalities favour men, in patriarchal societies and sexual and reproductive health decisions are made by them, there is a growing realisation that unless men are reached, reproductive health programme efforts will have limited impact. Because of unequal gender power relations, women are especially vulnerable as they are unable to negotiate changes in sexual behaviours to prevent unwanted pregnancy and to practice safer sex. Therefore, the involvement of men as responsible partners is essential (Duza, 2001).

Recommendations

The recommendations below are based on this study’s findings and are supported by literature review:

1) Safe motherhood programmes should design more maternal health programs that involve men and educate them about male involvement in childbirth preparation as a strategy to improving maternal health outcomes to prevent maternal and neonatal deaths.

2) ANC services should develop strategies to empower men with knowledge about ANC so as to increase ANC attendances and in turn increase skilled deliveries.

3) Safe motherhood programmes should develop guidelines on men’s involvement in childbirth preparation.

4) Specific strategies should be in place to empower women and men with complemented adequate maternal health care information for them to make informed and joint decisions of issues affecting maternal and neonatal outcomes.

Application of evidence

Studies reviewed in this desk review suggest that there is greater improvement in maternal and child health care services with male involvement. Kakaire et al (2011) and friends established that chances of a pregnant woman delivering at the health facility and access skilled delivery care are higher if she consulted and made the decision with the spouse, Iliyasu’s study in Nigeria established that the proportion of women making savings for emergencies and transport was very low without male involvement, whereas Tweheyo (2010) found that involvement of male partners in ANC services increased the number of women attending ANC services to well over 65.4%. Similarly,
Mullany et al (2006) in a randomized controlled trial study done in Nepal found that Women who received education with their husbands were also nearly twice as likely as control group women to report making more birth preparations. The study further established that educating women together with their partners resulted into likelihood of women receiving not only skilled delivery services but also postpartum care compared to women who received education alone or no education at all.

Review of Zambian policy documents indicates similar behavioural patterns. For instance in Zambia it is mandatory that all pregnant women attend the four skilled ANC Visits. However, evidence suggests that about 90% of pregnant women in Zambia attend the first ANC visit. Out of these 70% manage to turn up for the fourth visit and only 43% finally manage to access the much promoted skilled delivery at a health facility. Just a small proportion of about 23% reports back after delivery for post-natal care (MoH, 2010). The figure below (figure1) summaries the evidence above. Locally in one of the rural districts in Zambia (Lundazi district) evidence suggest that 77% of pregnant women are accompanied by their male partners for the first ANC visit (LDHMT, 2012). No data is available for the percentage of pregnant women accompanied by males for the three subsequent visits. It is actually policy that for the first ANC visit, all pregnant women should be accompanied by their spouses to have their HIV testing as a PMTCT measure. There is need for studies to be conducted to ascertain as to whether, the high turn up of men for the first ANC visit is as a result of men’s change of behaviour and commitment to ANC services or as to whether men are simply being compelled by the policy existing to avoid their partners being denied of the service.

But whether, the high turn up for men in the first ANC visits is due to policy or behavioural change presents an opportunity that ANC service providers can utilise to provide the necessary information to both women and men as regards childbirth and complication readiness plan.

In the year 2010, the Zambian government launched a vigorous sensitisation campaign called the Campaign for Accelerated Reduction of Maternal Mortality in Zambia (CARMMZ). The aim of the campaign was to mobilise support for maternal health services under the theme: “Zambia Cares, no woman should die whilst giving birth” (MoH, 2010). However, despite the high numbers of organisations promoting Safe motherhood strategies at community level, and the vigorous sensitisation campaign by the government, there is hardly any specific programme that deliberately targets and addresses male involvement in childbirth preparation in the district as a measure to prevent and reduce maternal mortality. Women have continued to deliver in large numbers at home in the hands of totally unskilled birth attendants. A high number of them too continue to perish helplessly in the process of giving life within the vicinity and in the homes of their partners. Equally there is hardly a credible study done to explore male partner involvement in childbirth preparation in Zambia. There is therefore, a need to explore closely the roles of men in the whole process of child birth preparation to gain insight of the joint birth plan decision making process at family level.

There is a need for more research to look not just at the process and immediate outcomes of men’s involvement, but also to have a longer term impact on the lives of both women and men. The reality is that despite the considerable rhetoric surrounding men’s involvement, men are still seldom targeted and there are very few evaluations of interventions in sexual and reproductive health that address issues from a focal point of masculinity, or even an understanding of men’s needs (Sternberg and Hubley, 2004). The inescapable conclusion is that in issues of male involvement in childbirth preparation and maternal deaths prevention, although perhaps no longer seen just as part of the problem, men have yet to be regarded seriously as part of the solution (Sternberg and Hubley, 2004).
As high as 90% pregnant women access 1st Antenatal attendance in company with their spouses. The number gradually drop to below 70% of those accessioning four visits and only about half end up delivering at the facility.

**Conclusion**

Analysis of study evidences has shown significant association between male partner involvement in birth preparedness, skilled antenatal attendances, and women’s decision-making on location of birth, assistance by SBAs and outcomes of pregnancy. Evidences showed that women who take individual decision on location of birth are more likely not to deliver under the assistance of SBAs (Skilled Birth Attendants). Male involvement in decision-making increases the likelihood of women having attendance by SBAs at birth. It was established that women who received education with their husbands were more likely to make adequate childbirth preparations than those who received the education alone. The study further established that educating women together with their partners resulted into likelihood of women receiving not only skilled delivery services but also postpartum care and increase involvement of male partners in ANC services. Based on these evidences presented, this study recommends that the maternal health care programmes, therefore, need to shift from the current policy of only targeting women to promoting increased male partner involvement in safe motherhood programmes.

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Highlighting the Historical, Current, and Future Challenges to Control and Eradicate Malaria in Uganda - A Narrative Review

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Abstract

Background: For the last century, malaria has caused a serious developmental setback to African countries. Historically, in Uganda, the control of malaria and its eradication challenges can be traced for more than 100 years ago especially the control and elimination activities connected to research and malaria control between 1892 to 1949. During the early part of the 21st century, malaria received global health priority recognition until 1998 when the World Health organization (WHO) adopted a Rollback strategy. Currently, in May 2015, The World Health Organization (WHO) adopted a global Strategy for Malaria 2016–2030. This ambitious strategy apparently challenged by the fact that current tools are not adequate to achieve the planned targets. The future challenges to eradicate malaria are also real and need urgent solutions.

Methods: We searched Cochrane Libraries, EMBASE, Google Scholar, and unpublished ministry of health Uganda reports.

Objectives: To assess the historical, current and future challenges to malaria control and eradication and propose solutions to address them.

Results: Uganda has failed to eradicate malaria in the past century, due to challenges like lack of political commitment, limited resources for eradication programs, rampant history of antimalarial drug resistance, chronic and persistent antimalarial stock-outs in public facilities, resistance by parasites to ITNs and fragmentation in the coordination. Findings reveal that the past challenges still exist and are likely to last for more than a decade unless measures are in place to mitigate them. Uganda will face challenges in implementing newer effective interventions in future as well as the history of malaria eradication challenges may keep repeating itself.

Conclusion: The historical challenges in the eradication of malaria in Uganda are still affecting the current plans to eradicate malaria. Uganda may not eradicate malaria in next the 15 years, basing on its current and future challenges ahead.

Keywords: Malaria, control, eradication, Uganda, challenges, Historical, current, Future.

Introduction

Background

Malaria has caused serious health and developmental challenges in the Sub-Saharan African region for several years. Although the disease is can both preventable and treatable, it continues to pose a great challenge to health and development, especially in the African continent that carries the largest burden of malaria globally. Despite tremendous achievements in control of malaria by the malaria-endemic countries between 2009-2010, nearly 800,000 child mortalities with 300 million episodes still occur annually (Schwartz, Brown, Genton, & Moorthy, 2012). Public health interventions to control malaria are usually very cost-effective yielding highest returns on investment and yet only seven countries globally have managed to eliminate malaria in last 15 years. The fight to control malaria is very prolonged while in some countries like Uganda slowed down by several crosscutting challenges. This review focuses on highlighting these challenges from the historical, current, and future perspectives.
However, according to world malaria report 2015, the global risk and mortality due to malaria, remain very high. Over 254 million people in East and South Africa region are at a very high risk of disease, hence a global concern to accelerate current progress to check on morbidity and mortality in such countries (World malaria report 2015). According to Ministry of Health Uganda, Malaria ranks as one of the leading causes of morbidity and mortality in the country contributing to nearly 40% of all Outpatients clinic visits (MOH, 2011). The President’s Malaria Initiative (PMI) along with the Global Fund are the main financial contributors to malaria control and eradication in Uganda.

Historically, the control of malaria can be traced for more than 100 years ago especially the control and elimination activities connected research and malaria control between 1892 to 1949. Control Malaria control can be defined as “All efforts to reduce malaria morbidity and mortality to a locally acceptable level through the use of preventive and curative measures” (The Roll Back Malaria Partnership, 2008b). In the early 1930s, WHO encouraged the control of malaria using mass spraying with Dichloro-Diphenyl-Trichloroethane (DDT). In line with 1948 WHO malaria eradication strategy, Uganda embarked on vector eradication interventions throughout the 1950s to 1990 (Akello, 2015). Meanwhile, in the early part of the 21st century, malaria control and eradication efforts became a wider part of the global health priorities. (“Global technical strategy for malaria 2016–2030,” 2016) Until 1998, WHO adopted a Rollback strategy, including parasite based control interventions at the time, was most African countries were battling with rampant malaria epidemics leading to significant reduction in the spread of the disease. The interventions attracted large funding support to scale-up malaria control activities contributing to substantial reductions. WHO also envisaged a reduction of malaria incidence by 17% between the years 2000 to 2010 where it made a considerable success globally, but very limited success in Uganda (Cotter et al., 2013) The early diagnosis and management of malaria is currently strategized to control malaria in most African Countries. However, this strategy has faced challenges and failed to eradicate malaria in Uganda. Most health centers in Uganda are reported to have limited capacity in terms of human resource and infrastructural capacity to adequately implement universal parasite-based malaria diagnosis and treatment (Kyabayinze et al., 2012). Nowadays, World Health organization recommends artemisinin-based combination therapy (ACT) for treating uncomplicated Plasmodium falciparum malaria (Kassam, Collins, Liow, & Rasool, 2015).

Currently, during the 2015 world malaria day, the success achieved with the invention of new techniques of prevention and treatment of malaria was highlighted (Hemingway et al., 2016). In 2016 the global technical strategy for next one and half decade likely to be strongly shaped by technological innovations in medicines, vaccines, and vector control as well as improved strategies for delivering commodities have been launched (“Global technical strategy for malaria 2016–2030,” 2016). This review, therefore, highlights the key historical, current, and future challenges to malaria control in Uganda.

The problem

In May 2015, The World Health Organization (WHO) adopted a global Strategy for Malaria 2016–2030, that provides a framework for all malaria endemic countries to guide and support them attain full malaria control by reducing the incidence and mortality by 90% while achieving elimination in 35 countries by 2030. In the past century, Uganda has failed to eradicate malaria. The country’s current health infrastructure remains incapacitated to implement the road map to eradication. Limited financial support and political commitment to eradicate malaria underpin the future fight against the disease to achieve elimination. Even though malaria treatment drugs are free in the public sector, a considerable proportion of Ugandans largely seek health services from the private sector. According to world malaria report 2013, the country malaria treatment policy is largely Artemether Lumenfantrin a as first line and Quinine for treatment of severe malaria (Rica & Salvador, 2013). Resistance to the cost effective Quinine is likely to pose a great future challenge in Uganda especially when the country is struggling to procure more expensive artemisinin based combination with most
of the recommended Intravenous Artesunate regularly out of stock almost yearly in most public facilities and resorting to only cheap and affordable Quinine. Uganda has a clear history of malaria drug resistance, especially to chloroquine and Fansidar (SP) which was cost effective, but the country seems not to learn from this history (Greenwood, 2014). Furthermore, there seem to be no plans to alternative drugs for future resistance to Quinine and Artemisinin-based combination in Uganda hence the need to inform researchers, and Malaria control programmers to plan for these challenges.

**Justification**

There is a global consensus that global elimination of Malaria is not possible using the current tools, hence a call for new evidence-based tools that will make it possible to achieve eliminations in most countries in the future. In Uganda, there seems to be no evidence to move from a controlled low-endemicity of malaria to total elimination despite having developed malaria elimination strategy by her malaria control program (Newby et al., 2016). Even if Uganda has registered a tremendous success in the control and eradication of malaria nationwide, the need to provide the evidence base to develop a feasible framework to achieve the country’s 2030 international obligations is quite demanding. Such evidence can inform programming, increase political commitment, and national readiness to take on the ambitious tasks geared towards the elimination of malaria in Uganda. This review, therefore, is meant to assess and provide an insight of the historical, current and future challenges to control and eradicate malaria in Uganda.

**Findings**

**Historical challenges in control and eradication of malaria in Uganda**

Malaria was in the past considered as a neglected disease. In the past, various theories were presented with the means by which malaria was transmitted. However, by 1898 the female anopheles mosquito was discovered by Dr. Ronald Ross as responsible for malaria parasite transmission (Olowe et al., 2015). In the early 1930s, WHO recommended the control of malaria by mass spraying with Dichloro-Diphenyl-Trichloroethane (DDT). There were three remarkable decades of great optimism after 1949. Most notably was the events characterized by this period especially, the 1950 Kampala Conference, the 1955 Global Malaria Eradication Program, the post-independence primary health care strategies for the African States in the 1960 and the Special research training Program on Tropical Diseases at the World Health Organization in 1975. It also took over 30years to re-examine antimalarial strategies (Alilio, Bygbjerg, & Breman, 2004). In line with1948 WHO malaria eradication strategy, Uganda engendered tremendous effort to eradicate malaria by destroying the parasite using mass spraying campaigns using DDT in the 1950s and introduction of indoor residual spraying (IRS) in the 1960s (Kassam et al., 2015). Meanwhile, in the early part of the 21st century, malaria received worldwide recognition as a priority global health issue (“Global technical strategy for malaria 2016–2030,” 2016). Therefore, for Africa in general, tremendous achievements in control of malaria have been achieved, but fragmentation in the coordination remains a key challenge.

In the last 2 decades, Malaria in Uganda was managed with chloroquine monotherapy. Chloroquine (CQ), amodiaquine (AQ), and sulfadoxine-pyrimethamine (SP) used to be less expensive medicines, but the challenge was their treatment failure. The drug combinations meant to encounter treatment failure were proposed. Past evidence from the RCT showed that chloroquine (CQ) or Amodiaquine (AQ) plus Fansidar (SP) were the most cost effective option treatment combinations, but their effectiveness remained a challenge (Mcintosh, Kl, McIntosh, & Jones, 2010). The resistance to chloroquine prompted Uganda to change its treatment guidelines to use drug combinations like chloroquine and sulfadoxine Pyrimethamine (Fansidar). Malaria resistance was also reported in less than a decade promoting the adoption of the Artemisinin-based Combination Therapy (ACT). Most important to note is that Chloroquine was indeed a very cost effective drug, but no efforts
were planned to prepare for its failure hence scientists in academia and pharmaceutical companies had to learn lessons (Greenwood, 2014).

In past 10 years, the world resorted to massive vector control strategy with tremendous achievements as well as great advances in the fight to eradicate malaria with the malaria mortality being reduced to nearly 50% and related incidence by 50% (WHO, 2013).

**Current challenges of malaria control in Uganda**

Malaria is currently among the major deadly diseases affecting the poor in Africa, causing avoidable mortality among children and women. Its toll is estimated to cause 881,000 mortalities annually with nearly 90% of the deaths happening in Sub-Saharan Africa, Uganda inclusive (Kokwaro, 2009). According to the WHO, Uganda still ranks third out of the 18 sub-Saharan African countries, after the Democratic Republic of Congo that account for 90 percent of P. Falciparum infections (WHO, 2014). The Uganda national malaria control program report confirms that the disease is ranked as the 6th highest in a number of annual mortality in Africa, as well as highest transmission rates globally with 16 million cases and over 10,500 deaths reported in 2013 alone (Road, 2014). Recently the world malaria report 2013, revealed that Uganda relies mainly on ITNs, IRS, IPT, Larval control, early diagnosis, and treatment as well as surveillance to control and eliminate malaria (Rica & Salvador, 2013). In another study, current and cost-effective interventions available include, effective vector control using LLINs and IRS, and timely effective treatment using ACT after a right diagnosis (Kokwaro, 2009). According to Akello, poverty is one of the current challenges to the control of malaria in the country (Akello, 2015). Other research shows that historically research on malaria control was focused on attacking the mosquito vectors and remains very significant intervention at our disposal. Since these parasites pass through the vector, current studies recognize that attacking the parasites within the vector bear equal capabilities to control malaria as well as elimination or indeed eradication.

The use of Insecticide Treated mosquito Nets (ITNs) is currently recommended in Uganda to check on vector spreading the disease. Despite recent fears of resistance to insecticides as well as rebound, insecticide ITNs and minimal indoor residual house spraying (IRS) are still largely recommended to help check on levels of malaria transmission control in Uganda (Killeen, 2013). In order to develop strategies for ownership and use of ITNs, 4 studies were conducted on the outcome to increase the ownership and use of ITNs and both failed to verify the hypothesis “that people who purchase nets will use ITNs more than those who receive them at no cost” (Augustincic Polec et al., 2015 pg 1-6). Instead, a recommendation for educational interventions was made. However, the challenge of the impact of various categories and intensities of education and health promotion still remains at large (Augustincic Polec et al., 2015). One of the Randomized controlled Trial (RCT) conducted in the neighboring Country Tanzania, indicated that IRS is more protective compared to ITNs in Stable transmission zones. Uganda highly relies more on ITNs, which is confirmed to be more protective in unstable transmission zones especial among the rural poor and mass distribution of free ITNs is currently highly preferred. However, the study concluded that there are few well-run trials to quantify the effects of IRS in areas with different malaria transmission (Pluess et al., 2010). In line with the above, current evidence from RCT that compares IRS to IRS also confirmed that IRS bears a great impact on the reduction of malaria incidence in unstable settings. However, the challenge remains that RCT data from such stable malaria settings is quite limited even if it confirms ITN to have better protection than the IRS in unstable malaria settings (Pluess et al., 2010). According to world malaria report 2013, Uganda has high transmission rates of malaria by more than 90% and ITNs, IRS and Intermittent presumptive treatment in pregnant women are the cornerstone of prevention of the disease in the country (Rica & Salvador, 2013).

Current evidence shows concern about the cost-effectiveness of malaria control programs. In one of the systemic reviews on cost and cost-effectiveness of malaria control interventions conducted recently revealed an evidence base on donor and domestic allocation of resources
(White, Conteh, Cibulskis, & Ghani, 2011). Contrary to Uganda’s malaria prevention practices, a recent study conducted in neighboring country Kenya revealed the supremacy of 75% reduction in risk of transmission at a lower cost USD 9$ for those sleeping in houses sprayed IRS. However, those using ITNs spend more to a tune USD 29$ with the lower risk of reduction in transmission of 69% (Guyatt, Corlett, Robinson, Ochola, & Snow, 2002).

Currently, it is evident that Artemisinin-based Combination Therapy (ACT) has contributed significantly to the control of malaria in Uganda. Although in 2002 Uganda adopted a Village Health Team strategy that continues to play a key role in the distribution and increasing access to ACT in rural communities, a number of challenges still exist like planning and financial support for transport and storage, local sensitivity tests and establishing a comprehensive quality control systems (Kokwaro, 2009). The current challenge is the fear of history repeating itself like when chloroquine resistance occurred in Uganda in the past and the country resorted to using the drug combinations like Chloroquine and Fansidar (SP). Therefore, plans should be in place to contain resistance to ACTs by developing newer cost effective alternative regimens needed for future use in Uganda and Africa at large (Greenwood, 2014). Most recently, according to WHO world report 2013, Uganda ACTs are free for all ages in the Public sector (WHO, 2013). Furthermore, contrary to the current practice in Uganda, WHO recommends the use of Artesunate Injection in treating children and adults with severe malaria since several trials have shown the drug to have fewer mortalities compared to quinine treatment (Esu, Ee, On, Uwaoma, & Mm, 2014). The challenge remains in the use of Intravenous Artesunate for public sectors especially the challenge of frequent stock outs this medicine. Hence, the continuous use of Quinine as the second-line antimalarial drug in Uganda Public health sector. This relates to low uptake of ACT in various African countries since most people resort to seeking care from the private sector. The drugs are also quite expensive on retail markets hindering their usage and current call to subsidize their cost is dire (Opiyo, Yamey, & Garner, 2016). The country also withdrew artemisinin-based monotherapies, meaning the effect of pill burden remains, especially when dealing with Paediatric formulations. Studies on adherence to 24 pills adult dose of coetem (Artemether +Lumefantrine) in the country are limited and future resistance is highly anticipated as few people can actually complete the treatment course of Coetem (Rica & Salvador, 2013). Since history repeats itself, in the last decade during 2006, WHO highly discouraged treatment of malaria using monotherapy with either chloroquine or Amodiaquine, Uganda continues to discourage ACT monotherapy as well (Mcintosh et al., 2010).

The future challenges for malaria control in uganda

It is now a year countdown to the 2016-2030 global malaria strategy as well as the idea by Bill &Melinda Gates Foundation to eliminate the disease by 2040. There remains a lot of international optimism to weather tremendous success is being made by implementing nations since it should ensure that community health workers have everything they need to continue fighting malaria (Foundation, 2018). In line with this report, according to the Uganda Ministry of Health (MOH) hospital survey 2014, there were serious weaknesses and gaps in terms of services availability, financing and in the capacity to offer health services (Health, 2014).

According to Gretchen Newby et al, Rollback of Malaria (RBM) Actions and Investments to eliminate Malaria by 2016–2030 (AIM) as well as WHO Global Technical Strategy for Malaria 2016–2030 (GTS), both supports the idea of elimination and eradication. The current and future recommended WHO package of core interventions towards elimination includes vector control, chemoprevention, diagnostic testing, and treatment. The Same assembly has also recommended the vector control strategy in 1948. Uganda also has a well-established future evidence-based Integrated vector management (IVM) as well (Okia et al., 2016).

The advancement in technology remains a challenge in Uganda as it calls for innovations for future prospects to eradicate malaria. Researchers are likely to develop new efficient technologies like vaccination to control and eradicate the disease. Attempts and trials are
already ongoing since the last decade on over 40 projects as well as future planned studies in this line including the development of new tools to accompany and complement the Global Action Plans are underway (Access, 2012). One such project is Progress made on RTS, S vaccine effective in preventing a great number of clinical malaria episodes and its progression towards licensing status already justified (Pm, Gelband, Graves, & Gelband, 2010). One similar study has already suggested that, since the malaria community is considering the main role of a first-generation malaria vaccine to control malaria, it is very important to also strategically document the halted as well as ongoing research projects on the malaria vaccine. This will enable researchers to learn lessons that will be used to support the success of second-generation vaccines in the next decade (Schwartz et al., 2012). Most studies also agree with the call for future improvements in tools to facilitate the achievement of the global ambitious targets. According to Marcel, these global targets to eradicate malaria cannot be achieved with the currently available tools and approaches (Tanner, 2012). In related research, to achieve elimination, we need to strongly strengthen health systems in malaria endemic countries a challenge ahead of Uganda to strengthen her health system capacity to implement the proposed interventions on malaria elimination (de Savignv, 2012). Uganda decentralized her health services resulting in various challenges to the eradication of malaria ranging from poor coordination and capacity building. A related study was done in a neighboring country in Tanzania also revealed that decentralization resulted in weak district coordination and management challenges as well as training its staff (Breman, Alilio, & Mills, 2004).

In Uganda, to achieve eradication, the private sector must be brought on board. Challenges in overcoming barriers to access and affordability for highly cost effective anti-malarial drugs in the private sector, especially in the rural Uganda are largely in existence. According to Talisuna et al, current data showed that supply-side antimalarial subsidy with intensive communication campaigns greatly improved uptake of ACTs by Uganda’s private sector (Talisuna et al., 2012). As the world faces a global challenge of antimalarial resistance, the public sector alone cannot overcome this future challenge. Since recent evidence shows that “Malaria patients worldwide are dependent on the efficacy of ACTs” (Ringwald, Barrette, Rasmussen, & Newman, 2012). This, therefore, creates a future challenge for Uganda with a rich history of drug resistance to eradicate malaria.

Vector control strategies have been historically proposed with limited success to elimination, especially in Uganda. According to Talisuna, cost-effective interventions require epidemiological evidence and further suggests that such evidence is applied in future business models to fund the malaria control program after 2015 in Uganda (Talisuna, Noor, Okui, & Snow, 2015). ITNs and IRS are best options recommended for control of transmission of malaria in Sub-Saharan Africa due to the fact that, major vectors of the Anopheles gambiae complex and the An. Funestus, prefer biting humans who are indoors at night (Huho et al., 2012). The looming fear that insecticide-treated mosquito nets (LLINs) will soon get to be less effective against the transmission of malaria is an eminent future challenge that calls for new research on vector control. Recent evidence also shows serious concerns raised on ITNs that are becoming less effective due to insecticide resistance against malaria transmission (Briët, Chitnis, & Penny, 2012). LLINs destroy sensitive organisms and agents are likely to create evolution towards the emergence as well as the spread of new resistant vectors (Ding, Ubben, & Wells, 2012). This calls for the need to improve on such approaches and techniques in Uganda. An example of such approaches is evidence from Kenya, where the use of odor-baited traps was proposed to be effective, novel means of integrated malaria control in Kenya by the SolarMal project (Briet, Chitnis, & Penny, 2012). Furthermore, WHO susceptibility tests also provided a clear indication of the LLINs killing efficacy in semi-field conditions as well. In line with this initiative, options for sustainable malaria control in Uganda are also being recommended in the future, such as integrated vector management (Mutero, Schlodder, Kabaterine, & Kramer, 2012). Contrary to this new evidence, there exists a new perception raised on prevention of malaria beyond the use of LLINs linked to the lack of systematic,
consistent, and in-depth health education about malaria. Therefore, the development of personal efficacy to effect the change in their surroundings as well as seeking for appropriate medical care and repellants (Castor, Tuakli, MacLeod, & Kompala, 2012). Even though Uganda still uses larval source management (LSM) targeting mosquito larvae inside the aquatic habitats as the to eradicate malaria, the approach is less widely practiced as it remains on paper. The future challenge to provide data on the effectiveness of this method still remains despite the WHO reporting the approach as being practiced to control Malaria in Uganda (Tusting et al., 2013). Related evidence confirms that LSM can greatly reduce vector numbers by targeting mosquito larvae aquatic sources. However, randomized crossover trial Conducted in Gambia River, contradicted these findings as it did not cause a reduction in the prevalence of the malaria parasites hence a call for more future studies that challenges such interventions (Tusting et al., 2013).

According to Ambrose, cost-effective interventions require epidemiological evidence and further suggests that such evidence can be applied in the future business models to fund the malaria program after 2015 in Uganda (Talisuna et al., 2015). According to Nicolas et al., in line with this approach, an analysis conducted based on computer simulation models revealed a strong way to identify data gaps hindering rational resource allocation in malaria control programs (Maire, Tarantino, Di Pasquale, Penny, & Smith, 2012). The need to create linkages between local and international research funders to support malaria elimination in Uganda has also been highlighted and should be further explored (Mshinda, 2012).

Timely treatment of malaria is key in the eradication of the disease. Uganda relies on artemisinin-based drug combinations commonly branded as coetem (Artemether + Lumeфантрине). The future challenge lies in the possible development of malaria resistance to artemisinin, hence the need to plan for research on the new generation of antimalarial regimens (Wernsdorfer, 1984). However, the new evidence available, suggests the possibility of future hopes for a single dose cure that will put a relief of pill burden for first line artemisinin-based combinations. The challenge will remain as to how long it will take Uganda to make such interventions affordable, available and accessible to its people. According to Timothy NC Wells, These regimens are already in phase II clinical trials with cutting edge technology capable of overcoming any future emerging malaria resistance leading to elimination (Wells & Wells T.N.C., 2012). Contrary to this, artemisinin monotherapy has been discouraged in strongest terms, based on the WHO recommendations to prohibit the use of artemisinin monotherapy reportedly used widely in private practice (Greenwood, 2014). Hence balancing the effect of the pill burden against the risk malaria drug resistance is a major challenge for the future scientist in the next 15 years. According to WHO world report 2013, Uganda withdrew artemisinin-based monotherapies as well due to fear of resistance.

**Discussion**

Findings show that the past challenges in control and eradication of malaria still exist and are likely to last for more than a decade unless measures are in place to mitigate them. Uganda is a low resource country with limited resources to finance malaria eradication programs. The country also has a rampant history of drug resistance by parasites, chronic and persistent antimalarial stock outs in public facilities, unaffordable antimalarial drugs in Uganda’s largely private sector, resistance by parasites to vector control interventions like ITNs. Furthermore, Uganda’s health facilities largely have very limited capacity in terms of human resource and infrastructure to adequately implement universal parasite-based malaria diagnosis as well as treatment. All these challenges must be addressed if Uganda is to achieve her 2030 international obligations on control and eradication of malaria globally.

Uganda is also likely to face problems in implementing newer effective interventions in the future, due to its financial constraints and lack of political commitment on her health budgets coupled with widespread corruption in the health sector. The past challenges faced in the eradication of malaria ranging from the limited financing of the health sector to drug resistance are still manifest as current challenges in the country, we cannot rule-out such
challenges like drug resistance in future, and thus, history on malaria control, and eradication challenges may keep repeating itself.

**Conclusion**

The historical challenges in the control and eradication of malaria in Uganda are still affecting the current plans to eradicate malaria in the country. Uganda may not eradicate malaria in next 15 years, basing on its historical, current, and future challenges ahead. The country should therefore urgently embark on improving her health infrastructure, build strong human resource network, coordination, as well as operational research in the field of malaria control program. To achieve the 2030 international obligations to control and eradication of malaria will depend on how well Uganda commits to strengthening its health system as well as the Abuja declaration to the allocation of 16% to the health sector. Lastly, the commitment to the implementation of the global fund meant to control malaria that in past has been widely met with corruption challenges will be a fundamental step in the progress geared towards the control and eradication of malaria in the next 15 years.

**Acknowledgements**

I would like to acknowledge the efforts of Gabriela Piriz Geneva foundation of medical education and research and Loyda. K. Twinomujuni University of Roehampton and lastly Suma Menon Texila American University Faculty member and Kumar Suresh Texila journal of Public health for Guidance on article Publication

**References**


The Effect of Sociocultural Factors on HIV/AIDS Prevalence amongst Adolescents and Youths in Niger State, Nigeria

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Abstract

Human Immunodeficiency Virus (HIV) which causes the disease, Acquired Immunodeficiency Diseases Syndrome, is one of the public health challenges facing both developing and developed nations.

This descriptive study was carried out to examine the effect of socio-cultural factors on the prevalence of HIV/AIDs amongst adolescent and youths attending the antiretroviral clinics of four general hospitals in Niger State, Nigeria. These were the general hospitals in Bida, Minna, Suleja and Kontagora.

In order to participate in the study, the participants must be within the age bracket of adolescent and youths and must be retroviral positive. The instrument for data collection was a pretested semi-structured questionnaire. Data analysis was carried out using both descriptive and inferential statistics.

Results: A total of 268 respondents were interviewed. More male participated in the study and majority of the participants were concentrated within the age bracket (21 – 25) years.

About 71.6 percent of respondents said alcohol intoxication did not lead them to indulge in unprotected sex whilst 79.9 percent respondents did not experience influence of watching pornographic file on their sex life.

Conclusion: The study showed, socio-cultural factors were found not to have had influence on HIV/AIDs prevalence.

From the finding, more awareness programs about HIV/AIDs should be carried out among adolescent and youths. Government and Nongovernmental organization should partner with the community, faith based organization, schools to implement these findings.

Keywords: Human Immunodeficiency Virus, Adolescent, Youth, Socio-Cultural factors.

Introduction

Background of study

Human Immunodeficiency Virus (HIV) which causes the disease, Acquired Immunodeficiency Disease Syndrome (AIDs) is one of the most common causes of disease burden globally (Fatasi, 2005).

HIV/AIDS is one of the public health challenges facing both developing and developed nations. The epidemic amongst adolescents is fast growing because of young people/adolescents vulnerability to becoming infected with the disease. Students in secondary schools who are commonly adolescents as well as young people who are at an age when sexual activity is just beginning or had already begun are potentially at risk of contracting HIV, unless they are properly informed to see themselves at risk and undertake safer sexual practices (Maluwa–Banda, 1999).

Adolescence is defined as the age from 10–19 years and young adult 15–24 years (UNICEF, 2013) as a period many begin to explore their sexuality and so be able to have access to sexual and reproductive health information to guide him or her. Their limitation of access to this information because of their age, socio-economic status and beliefs, have led to the need for protection against HIV infection which perhaps is being underplayed by the family and society. Also, some adolescents experiment with drugs or their sexuality, while others are exploited sexually.
Young people are especially vulnerable to HIV infection because of the physical, psychological, social and economic attributes of the adolescence (Earl, 1995; Oppong and Oti–Boadi, 2012). Early and risky sexual activity increase adolescents and young people’s vulnerability to HIV (UNAIDS 2007).

Youths are a very potential population subset that must be understood, and so it is necessary that studies be carried out which will focus on promoting desired positive behavior change among the adolescent age cohort, because of the physiological changes that drives them to engage in risky behavior that could make them contract HIV. Such studies may provide guidelines on how to promote desired behavior change among youths/adolescents to prevent them from contracting HIV/AIDS, especially now that no known and effective cure has been found for.

There are many religious and cultural ways which had helped to change sexual behaviors positively and which had helped to eliminate further spread of HIV. Moreover unprotected sexual contact is still the most frequent means of prevention of transmission of HIV.

The spread of HIV amongst adolescents has been linked to some societal and cultural practices. Socio-cultural factors were observed to influence the spread of HIV in Uganda by Asiimwe et al (2003), in their article titled “Focus group discussion on socio-cultural factors impacting on HIV/AIDS in Uganda”. Abdulai, Zongkui and Junmei (2011), in their article titled socio-cultural factors affecting the spread of HIV/AIDS among adolescents in Sierra Leone, indicated that adolescent social practices that exposed them to HIV, included alcohol usage, video shows of pornographic contents, cultic practices, vulnerable sexual practices and blood swearing covenant. Also cultural practices such as rites of passage to adulthood, not circumcising boys, contraceptive strings and early marriage were noted as making adolescents more prone to contracting HIV/AIDS. The report of their study also showed that adolescent boys and girls are usually seen around the vicinity where pornographic films were shown and because of their experimental nature may take part in unprotected sexual intercourse. The consumption of alcohol is often forced upon them by peer groups. It is often reported that alcohol impairs judgment and loss of control amongst individuals with the likely possibility of engaging in unintended and un-protective sex.

In an article titled ‘Male circumcision and risk for HIV transmission and other health conditions published in CDC HIV/AIDS science facts, updated in February 2008, observed that the cultural practice of not circumcising males on time was said to increase the transmission of HIV/AIDS. From research it has been documented that male circumcision had significantly reduced the risk of men being infected by HIV during penile–vagina sex (CDCHIV/AIDS Annual Report, 2008). Circumcision has been described as the surgical removal of some or the entire foreskin (prepuce) from the penis. Also, Roselinnes (2006), in her study observed that adolescent girls are more vulnerable to HIV because the teenage girl’s vagina is not well lined with protective cells as that of a matured woman, as her cervix may easily be eroded potentially enhancing the risk of HIV infection.

According to Sengendo and Sekatawa (1999), a relationship has been established between alcohol drinking and sexual assault among young people which may lead to infection with HIV. Drinking of alcohol and alcoholism have been implicated in influencing the spread of HIV/AIDS (Velayati et al., 2007).

Asiimwe et al., 2003 noted that pornographic videos watched by adolescents enhance them to go into sexual intercourse exploration. According to him, some of the scenes became tempting, teaching them the acts of sexual intercourse, while those watching them with their boyfriends and girlfriends went into the act of sexual intercourse. Tattooing and other scarring methods have also been seen as agents for HIV transmission (Velayati et al., 2007).

HIV prevention strategies in Nigeria had focused on designing programs for adolescents on Family Life and HIV Education. The lessons are to be incorporated into the Nigerian Secondary School Curriculum. A comprehensive list of topics related to HIV including basic facts about HIV transmission and prevention as well as issues on stigma are to be included in the school’s curriculum (NACA, 2013)
Much research has been carried out on the determinants and consequences of wrong sexual behavioral practices amongst adults, adolescents, even though adolescents have received little attention in some of our West African countries, including Nigeria.

This gap in knowledge regarding adolescents and youth sexual behavior has persisted. For example, not much has been reported about what motivates young people to initiate sexual practices outside marriage such as having multiple sexual partners, carrying out cultic practices that allows for sharing of un-sterilized needles and engaging in other socio-cultural practices that exposes them to being infected with HIV.

Studies on adolescents sexual behaviors carried out in other West African countries have shown that a range of factors including lack of reproductive health and HIV/AIDs information and services contributed to heightened risk of HIV among young people. Biglan et al., 1990, Santelli et al., 2000.

Several of these publications on social and behavioral factors associated with high risk sexual behavior among adolescents coupled with very few functioning programs on prevention of HIV/AIDs on adolescent and youth which will help in curbing the rising prevalence of HIV/AIDs are in place and not functional in this part of the country hence the need to carry out this study on the effect of socio-cultural factors on prevalence of HIV/AIDs amongst Adolescents and Youth in Niger State, with the objective as:

To determine the influence of sociocultural factors on the spread of HIV/AIDs amongst adolescents and youths in Niger State, to examine the effect of prior knowledge of HIV/AIDs on the transmission of the disease and to ascertain influence of positive lifestyle changes in behavior on the prevalence of HIV/AIDs amongst adolescents and youths in Niger State.

The findings from this study may be used to assist in implementation of the already existing Nigeria National Adolescent Health Policy of 1995 (yet to be reviewed till date), as it relates to the area of HIV/AIDs among Adolescent and Youth in Niger State in particular and Nigeria in general. It may also guide and help to design functional preventive programs on HIV/AIDs with special focus on adolescent and youth.

**Limitation of the study**

This study was limited to adolescent/youths in Niger State who are retroviral positive and attends the antiretroviral clinics of the four hospitals used for the study.

**Methodology**

**Study location**

Niger State of Nigeria, the location of the study was created on 3rd February, 1976 from the old North Western State of Nigeria. The state lies on latitude 8° to 11°30 North and longitude 03°30 to 07°40 East. The state is bordered to the North by Zamfara State, west by Kebbi State, South by Kogi State, South west by Kwara State, North – East by Kaduna State and South East by Federal Capital Territory. The state also has an International Boundary with the Republic of Benin along Agwara and Borge LGAs to the North West. It covers a land area of 76,469.903 square kilometers which is about 10% of the total land area of Nigeria out of which about 85% is arable.

The state presently has 25 (twenty five) local government area. The people of Niger State are predominantly Muslims and Christian with very few traditional religious practitioners.

Although there are three major ethnic group (Nupe, Gbagyi and Hausa) in the state, other tribal group include – Kadara, Koro, Baraba, Kakanda, GanaGana, Dibo, Kambari, Kumuku, Pangu, Dukkawa, Gwada and Ingwai.

Economic activities are fast growing in the state, with good infrastructure as roads, electricity, water and communication facilities to make way for interested investors. Natural and Mineral resources found in the state include, Gold, Ball Clays, Silica, Marble, Copper, Iron, Limestone, Kaolin, Lead etc. There are three Hydro Electric power stations in the state and they are situated at Kainji, Jebba, and Shiroro.
Niger State has some tourist attraction such as Zuma Rock, Gurara Falls, Baro Empire Hill, Lord Lugard Colonial Runs at Zungeru, Nagwamatse Well and Kainji Lake National Park.

Niger State is divided into six (6) health zones which are Minna, Kontagora, New Bussa, Mokwa, Suleja and Bida. Each of this headquarter town of these health zones has a general hospital. It is worthy of note that the four general hospitals where I carried out this study are in the headquarters of the health zone which are General Hospital Bida, General Hospital Minna, General Hospital Kontagora and General Hospital Suleja. These hospitals are among those facilities registered that offer antiretroviral services.

The four General Hospital Bida, Minna, Kontagora and Suleja are strategically located in the three senatorial zones the state is divided into as zones A, B and C. While General Hospital Bida is located in zone A, General Hospital Minna and Suleja are located in zone B and General Hospital Kontagora is located in zone C.

**Study population**

The population for this study included the adolescents and youths attending various antiretroviral clinics of the four general hospitals located in Minna, Bida, Suleja and Kontagora.

It is worthy of note that the population of Niger State as of 1961 was 1,194,508. This rose to in 2,421,581 in 1991 and as at 2006 census population exercise the figure was put at 3,950,249 (There has not been another census conducted since the 2006 census).

The populations of the various local governments where the General Hospitals are located and in which the study took place are as follows:

<table>
<thead>
<tr>
<th>LGA</th>
<th>Land areas</th>
<th>Population no.</th>
<th>Population density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bida</td>
<td>50km²</td>
<td>188,181</td>
<td>3,764</td>
</tr>
<tr>
<td>Minna</td>
<td>73.4 km²</td>
<td>201,429</td>
<td>2,744</td>
</tr>
<tr>
<td>Suleja</td>
<td>153.4 km²</td>
<td>216,578</td>
<td>1,412</td>
</tr>
<tr>
<td>Kontogora</td>
<td>2179.3 km²</td>
<td>151,944</td>
<td>70</td>
</tr>
</tbody>
</table>

*Map 1. Map of Niger showing various local government inclusive of the four local government where the study took place.*
Design of study

A descriptive study was carried out to determine the factors which influence the prevalence of HIV/AIDS among adolescents and youth in Niger State, Nigeria. This is because the study was non experimental as the researcher did not manipulate any variable and there were no control variables used (Bamise and Adedigba, 2011).

The descriptive study also tried to obtain information on whether there was relationship between socio-cultural factors, knowledge about HIV, positive lifestyle and the prevalence of HIV/AIDS among adolescent and youth in Niger State.

Sample size determination

Using the formula

\[ n = \frac{Z^2pq}{d^2} \]

Where:
- \( n \) = Desired Sample size
- \( z \) = Standard normal deviate usually set at 1.96
- \( p \) = the proportion in the target population estimated to have a particular characteristic with \( p \) as 4.6%
- \( q \) = 1 – \( p \)
- \( d \) = Degree of accuracy desired usually set at 0.05

From an update on the HIV/AIDS Epidemic and Response in Nigeria, the National Agency for Control of AIDS, facts sheet 2011 quoted the prevalence for HIV/AIDS amongst adolescents as at 2011 to be 4.6% which represents \( p \) which is the proportion in the target population with a particular characteristic.

Therefore

\[ z = 1.96 \]
\[ p = 0.046 \]
\[ q = 1 - 0.046 = 0.954 \]
\[ d = 0.05 \]
\[ n = \frac{Z^2pq}{d^2} = \frac{(1.96)^2 x 0.046 x 0.954}{(0.05)^2} \]
\[ = \frac{3.8416 x 0.046 x 0.954}{0.0025} \]
\[ = \frac{0.16858477}{0.0025} \]
\[ n = 67.43 \]

Therefore if \( n = 67.43 \) Minimal sample size = 67.43.

In the research if Minimal sample size from calculation is 67, then if 67 subject was allotted to each of the four hospitals, then total sample size is 67 x 4 for all four hospital = 268.

Sampling technique

A multistage random sampling technique was used in the study. First stage involved the random selection of the four general hospitals used for the study from among the health facilities in the state. These four general hospitals which located in Minna, Bida, Kontogora and Suleja are strategically located and registered as large facilities offering antiretroviral services. The General Hospitals in Minna and Suleja are located in the state senatorial zone B, General Hospital Bida, in senatorial zone A while General Hospital Kontagora is located in senatorial zone C.
The second stage involved the selection of participants at the various four general hospitals selected for the study. Participants were randomly selected from the attendees at the hospital antiretroviral clinics. The inclusion criteria were participants who must be HIV/AIDS positive and fell within the age range of adolescents and youths.

**Instrument for data collection**

Pretested questionnaire was drawn and the questions asked reflected the objective of the study. Questions on socio-cultural factors which influence prevalence of HIV/AIDS amongst adolescents and youths were asked. Content validation of the questionnaire which involved checking through all the questions asked to ensure they were correct and measured what was supposed to be measured.

About four assistants were trained on how to administer the questionnaires after they had understood the content. The assistants were divided in two groups each containing two assistants which accompanied me to administer the questionnaires to the participants recruited for the study at the four general hospitals.

**Data processing and analysis**

Data processing and analysis were carried out using both descriptive and inferential statistics. After checking for completion of filled questionnaire, and checking for mistakes. The questionnaire was well sorted. The descriptive statistics carried out included presentation in tables and percentage analysis while the inferential statistics included analysis of variance.

**Ethical consideration**

Ethical approval was sought and obtained at the Niger State health management board to carry out the study in the four general hospitals.

Permission was also obtained from the management of the various hospitals to carry out the study at their various antiretroviral (ART) clinics.

Consent of the participants which were recruited for the study was sought for, and the purpose of the study explained to the various participants. The participants were told there will be no harm done to them during the study. The participants were also informed that their response will be kept confidential between me and my supervisor/guide. They were also informed of their freedom to opt out of the study at any stage of the study if they decided they could no longer continue to participate in the study. A sample copy of consent form signed by the participants can found in the appendix section of this work.

**Results**

The results of the analysis of the study are presented below.

The demographic data analyzed included the respondents Sex, Age, Marital Status, Educational Background and Occupation.

**Gender of respondents**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>146</td>
<td>54.5</td>
</tr>
<tr>
<td>Female</td>
<td>122</td>
<td>45.5</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>

From table 1, it can be observed that the total respondents who participated in the study were 268 out of which 146 or 54.5 percent were males while 122 or 45.5 percent were females. The number of male participants is slightly higher than those of the female participants.
Table 2. Distribution of respondents by age

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 – 15 years</td>
<td>30</td>
<td>11.2</td>
</tr>
<tr>
<td>16 – 20years</td>
<td>80</td>
<td>29.9</td>
</tr>
<tr>
<td>21 – 25years</td>
<td>158</td>
<td>58.9</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>

From Table 2 it can be observed that majority of respondents fall within the age bracket of 21 to 25yrs.

Table 3. Distribution of respondents by marital status

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>137</td>
<td>51.1</td>
</tr>
<tr>
<td>Single</td>
<td>120</td>
<td>44.8</td>
</tr>
<tr>
<td>Widow</td>
<td>10</td>
<td>3.7</td>
</tr>
<tr>
<td>Widower</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>

This analysis reveal that more than half of the total respondents are married, furthermore that 55.2 percent of the respondent have one form or another of legal partner at some time in their life.

Table 4. Distribution of educational qualification

<table>
<thead>
<tr>
<th>Educational Qualification</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary School</td>
<td>20</td>
<td>7.5</td>
</tr>
<tr>
<td>Secondary School</td>
<td>109</td>
<td>40.7</td>
</tr>
<tr>
<td>Tertiary Institution</td>
<td>135</td>
<td>50.4</td>
</tr>
<tr>
<td>Not Schooled</td>
<td>04</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>

From the results in Table 4 it can be seen that majority of the respondent’s precisely 98.5 percent are literate, that is can read and write in English language.

Table 5. Distribution of Respondents by Occupation

<table>
<thead>
<tr>
<th>Respondents Occupation</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>112</td>
<td>41.8</td>
</tr>
<tr>
<td>Unemployed</td>
<td>112</td>
<td>41.8</td>
</tr>
<tr>
<td>Student</td>
<td>44</td>
<td>16.4</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100</td>
</tr>
</tbody>
</table>

From Table 5 it can be seen that 112 respondents representing 41.8 percent are employed, 112 respondents also representing 41.8 percent are unemployed while 44 or 16.4 percent of the total respondent are students.

Table 6. Distribution knowledge of HIV/AIDs

<table>
<thead>
<tr>
<th>Knowledge of HIV/AIDS</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>256</td>
<td>95.5</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>4.5</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>

From Table 6, it can be seen that 256 respondents representing 95.5 percent have heard about HIV/AIDs while 12 respondents representing 4.5 percent have not heard about HIV/AIDs. This implies that awareness of HIV/AIDs is very high.
Socio – cultural factors influencing HIV/AIDS

In this sub-section, the study gives results of descriptive analysis carried out on the Socio – Cultural habits of the respondents as they influence the prevalence of HIV/AIDs.

Consumption of alcohol

Table 7. Distribution of consumption of alcohol

<table>
<thead>
<tr>
<th>Consume Alcohol</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>35</td>
<td>13.1</td>
</tr>
<tr>
<td>No</td>
<td>233</td>
<td>86.9</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>

From Table 7, it can be observed that 35 respondents representing 13.1 percent say they consume alcohol while 233 respondents representing 86.9 percent say they do not consume alcohol. The rate recorded for the consumption of alcohol could be attributed to the predominantly Muslim environment where the study was conducted.

Table 8. Distribution of respondents on alcohol intoxication and indulgence in unprotected sex

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>39</td>
<td>14.6</td>
</tr>
<tr>
<td>No</td>
<td>192</td>
<td>71.6</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>37</td>
<td>13.8</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>

From Table above it can be observed that majority of respondents claimed alcohol intoxication did not led them to indulged in unprotected sex.

Table 9. Distribution of respondents on pornographic films

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>47</td>
<td>17.5</td>
</tr>
<tr>
<td>No</td>
<td>221</td>
<td>82.5</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>

From Table 9, it can be observed that 47 respondents representing 17.5 percent watch pornographic films while 221 respondent or 82.5 percent say they do not watch pornographic films.

Table 10. Pornographic film influence sex life.

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>55</td>
<td>20.5</td>
</tr>
<tr>
<td>No</td>
<td>213</td>
<td>79.5</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Majority of respondents representing 79.5 percent say pornographic film does not influence their sex life.

Cultic practices involving indiscriminate sex

The responses by the respondents are presented in Table 10

Table 11. Cultic Practices involving indiscriminate sex with others

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>29</td>
<td>10.8</td>
</tr>
<tr>
<td>No</td>
<td>239</td>
<td>89.2</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Majority of respondents or 89.2 percent say they do not belong to cultic groups that promote indiscriminate sexual practice with others.

Table 12. Distribution of respondents on initiation with tattoos and sharing same needles

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>30</td>
<td>11.2</td>
</tr>
<tr>
<td>No</td>
<td>203</td>
<td>75.7</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>35</td>
<td>13.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>268</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

A higher proportion of respondents or 75.7 percent say they have never been involved in age group initiation involving tattoos or sharing same needles.

**Blood covenant**

The results obtained for this is presented in Table 13.

Table 13. Distribution of respondents on blood covenant

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>29</td>
<td>10.8</td>
</tr>
<tr>
<td>No</td>
<td>224</td>
<td>83.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>268</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Majority of respondents or 83.6 percent say they have never been involved in love relationship where blood covenant is taken.

Table 14. Distribution of respondents at Ceremonies where needles are shared leading to HIV/AIDS

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>193</td>
<td>72.0</td>
</tr>
<tr>
<td>No</td>
<td>42</td>
<td>15.7</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>33</td>
<td>12.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>268</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

From Table 14, it can be observed that 193 respondents or 72 percent representing majority of respondents say ceremonies where needles are shared could lead to HIV/AIDS transmission.

**Discussion**

Findings from the study showed more males participated in the study as shown in table 1. This could be as a result of the explorative nature of the male adolescent and youth.

A larger proportion of the respondents were within the age bracket (21 – 25 years) as shown in table 2. This result is similar to a study by (Iwelamira et al., 2012) which reported that most of the new HIV/AIDS infections are heavily concentrated among the young aged (15 – 24 years). Youths are said to have accounted for more than 60 percent of people living with HIV/AIDS (Joint United Nations program on HIV/AIDS, 2006, Okouta, 2007; Bankola et al., 2007; Iwelamira et al., 2012).

A higher proportion 137 (51.1 percent) of the total number of respondents were married. This was attributed to cultural practice of early marriage in the area where the study was carried out (table 3).

Majority of the respondents (98.5 percent) were literate as they had one form of education or the other (Table 4). This suggests a tremendous improvement in the literacy level in Niger State, Nigeria.

However, it is not surprised that less than half of the total number of respondents (41.8 percent) are employed, especially in the face of a level of unemployment rate in Nigeria. (Table 5).
On Awareness of HIV/AIDS, the study revealed respondents’ knowledge about HIV/AIDS was very high, with 95.5 percent of total respondent having heard about HIV/AIDS. This finding support the study carried out by Wodi (2005) on knowledge, attitude and opinion about HIV/AIDS among adolescents, in which 93 percent of respondents in that study had heard about HIV/AIDS. Another study by Omoyeni, AKiyemi and Fatusi (2012) which supported this study found out that about 75 percent of sexually active adolescent had high knowledge of HIV/AIDS.

Socio-cultural factors were also noted to influence contraction of HIV/AIDS infection. The study revealed that 86.9 percent of respondents did not ingest alcoholic beverage and also, 71.6 percent of respondents responded negatively to the question whether alcohol intoxication led them to have indulged in unprotected sex. This result supports the fact that there is sharia law in place in some area of northern Nigeria which prohibits alcohol ingestion and so the level of alcoholic beverage ingestion is low.

This finding is in contrast however to a Uganda study by Asiimwe et al., (2003) on focus group discussion on socio-cultural factors impacting on HIV/AIDS in Uganda, listed alcohol intoxication as one of the social factors that influenced the spread of HIV/AIDS. Another similar study whose findings contrasted with the findings from this study was an article by Abdulai, Zongku and Junmai (2011) on Socio-cultural factors affecting the spread of HIV/AIDS amongst adolescent in Sierra Leone revealed that adolescent social practices that exposed them to HIV infection included alcoholic usage, watching of pornographic films, cultic practices and blood swearing covenant.

Further findings from this study that are in contrast to the Abdullahi, Zongku and Junmai (2011) on socio-cultural factor affecting HIV spread are:- 82.5 percent of total respondents from the study did not watch pornographic film and 79.5 percent of respondents had not experienced the influence of watching pornographic film on their sex life.

However, Segendo and Sekatawa, (1997) established the relationship between alcoholic ingestion and sexual assault which could lead to HIV infection in young people and this findings is in contrast to that from this study.

Another contrasting finding to this study was a study by Asiimwe et al., (2003) which showed that pornographic videos watched by adolescent enhanced them to go into sexual exploration.

This study also showed that 89.2 percent of respondents had not been involved in cultic practices that promoted indiscriminate sex (Table11), whilst 75.7 percent of respondents had not been involved in age group initiation involving tattoos or same needles sharing (Table 12). Further findings from this research showed 72.0 percent of respondents accented positively that ceremonies where needles were shared led to HIV/AIDS transmission because of their increased awareness. (Table 14).

**Conclusion**

The study set out to examine the effect of socio-cultural factors on the prevalence of HIV/AIDS among adolescents/youths in Niger State.

From the results in the study, it was found out that Socio-cultural factors do not have influence on the spread of HIV/AIDS amongst adolescents and youths in Niger State and this is commendable as most of the sociocultural factor mentioned in the study were not commonly noted to have had a bearing on their becoming HIV/AIDS positive. Also noted from the study was a high level of awareness about HIV/AIDS disease amongst adolescents and youths in Niger State.

**Recommendations**

More awareness programs about HIV/AIDS should be created amongst adolescents and youths. There should be a directorate of adolescents and youths created, with certain positions reserved for the adolescents and youths to help them be part of all programs initiated and implemented for them.
There should be a revised curriculum for the schools which must include courses on sex education, to be taught to all students.

Various non-governmental agencies specialized in adolescents and reproductive health should be set up to partner with government, religious bodies, private schools etc.

Government must improve partnership with various communities, organizations as a way of improving adolescents and youth’s knowledge on HIV/AIDS.

References

Evaluation of the Maternal Death Surveillance and Response System, Sanyati, Zimbabwe 2017

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Abstract

Background: Combating maternal mortality requires a functional Maternal Death Surveillance and Response system (MDSR). In Zimbabwe, maternal mortality ratio was 651 deaths per 100 000 live births in 2015. Only five out of 25 deaths were notified on time in Sanyati District 2015-2016. We evaluated the system to determine if it was serving its intended purpose.

Methods: We conducted a descriptive cross sectional study using the MDSR technical guidance and the updated CDC guidelines for evaluating public health surveillance systems. Data were collected using interviewer administered questionnaires, key informant interviews, focused group discussions and records review. Medians, proportions and frequencies were calculated using Epi Info 7. Qualitative data was analysed using word cloud.

Results: We interviewed 216 health workers out of 230 involved in MDSR. Ninety-nine percent were nurses. Sixty-two percent correctly defined a maternal death. Ninety-eight percent found the system useful. Those confident to notify a maternal death were 139(68%). Easy access to case information was reported by 91(62%). Data was analysed by 138(80%) and used to monitor maternal mortality trends. Information sharing with stakeholders was reported by 59(31%). Ninety-seven percent were willing to continue participating. The cost of notifying a single death was USD$ 246.09. All community deaths were not being captured by the system as reported by 128(59%). Key informants and focused group discussions outcomes highlighted concerns of unreported community deaths. There was no zero reporting of community maternal deaths.

Conclusion: The MDSR system was useful, acceptable, simple and not costly. The system was also unstable, unrepresentative and not timely. Minimal stakeholder and community involvement, inadequate human resources and training, hampered the systems performance. We recommend health worker training and conducting an interventional study to assess the effectiveness of community involvement in reporting maternal deaths.

Keywords: Maternal Death, Surveillance, Response, Sanyati, Zimbabwe.

Background

Maternal mortality remains a global public health concern and part of the agenda for sustainable development. An increasing concern of dying mothers lead to the promulgation of the Millennium Developmental Goals (MDG) in year 2000 (WHO). The fifth MDG target was to reduce maternal mortality by 75% by year 2015.¹The global maternal mortality decreased to 210 deaths per 100 000 live births between 1990 and 2013 with Sub-Saharan Africa lagging behind with a maternal mortality of 510 deaths per 100 000 live births and contributing 42% of the global deaths.² Following uncertainties in meeting the 5th MDG target in 2010, the Commission on Information and Accountability of the Global Strategy for Women’s and Children’s Health recommended the implementation of an accountability framework. This framework adopted by countries was based on national oversight, accurate and comprehensive monitoring of results, regular multi-stakeholder review of data and
responses, all being key features of traditional surveillance and response systems. Thus, a Maternal Death Surveillance and Response (MDSR) Technical Working Group (TWG) was established and chaired by the World Health Organization.3 The Maternal Death Surveillance and Response system was formed in 2013 as a brainchild of the MDSR technical working group.

The MDSR system involves a continuous action cycle of ongoing systematic collection, analysis, interpretation and timely dissemination of maternal mortality data to those in need so that appropriate action is made. This system introduced the missing link ‘response’ component that did not exist in previous maternal death surveillance systems. The response part of the MDSR system entails appropriate action and strategies to prevent future deaths of similar nature from occurring.4 The system provides information that effectively guides actions to eliminate preventable maternal mortality at health facilities and in the community, counting every maternal death, permitting an assessment of the true magnitude of maternal mortality and the impact of actions (the response) taken to reduce it.

**MDSR system in Zimbabwe**

In Zimbabwe, the MDSR system was adopted in 2013 alongside the new socio-economic policy framework, Zimbabwe Agenda for Sustainable Socio-Economic Transformation (Zim Asset). This followed the countries unified efforts towards maternal mortality reduction. The adopted system entails identifying maternal deaths, reporting and response from community to national level. The cascade of events in this system is triggered by a maternal death at any level as shown in **Figure 1**.

![Diagram of MDSR system](image)

**Figure 1.** Links in a Maternal Death Surveillance and Response (MDSR) System, Zimbabwe

Following a community maternal death, a team from the immediate health facility carries out an investigation. A confirmed maternal death is notified to the next level by phone within 48 hours. Notification of deaths to the provincial medical directorate is done within fourteen days by completing the maternal death notification form in triplicate and forwarding two copies. Of the two copies sent to the Provincial Medical Directorate, one is forwarded to the Ministry of Health and Child Care (MOHCC) Head Office. The maternal death review committee reviews all the maternal deaths at district level. Confidentiality is maintained through the reviews, no names are used and no blame. At each level, there is feedback and dissemination of information. Case specific recommendations are made during maternal death audits. Periodic monitoring and evaluation of the response is done at each level of care.
An analysis of the MDSR system in Sanayti District (2015-2016), showed that: five deaths out of twenty-five had been timely notified (within two weeks) and the surveillance system had missed four maternal deaths. Furthermore, not all recommendations were implemented following the maternal death audits. Reasons for non-compliance to the MDSR system remained obscure. We evaluated the system to determine if it was serving its intended purpose.

Methodology

Study design

We conducted a descriptive cross sectional study using the CDC updated guidelines for evaluating public health surveillance systems and the MDSR technical guidelines.4

Study site

The study was done in Sanyati District, which is one of the seven districts in Mashonaland West Province, Zimbabwe. The districts population is 215 842. The district has two referral centres, Kadoma General Hospital located in Kadoma in the southern end of the district and Sanyati Mission Hospital located 110 kilometres from Kadoma in a Western direction. Amongst the twenty-six health facilities are, 16 rural health centres, five local authority clinics and two mine clinics. Kadoma General Hospital offers a full package of comprehensive emergency obstetric and newborn care. The population to clinic ratio ranged from 2 481 to 27 439 people per clinic. Women of childbearing age were 56 119 as of January 2017. Pregnant women were 10 792 (5%) with8 634 expected deliveries per year.

Study subjects and sample size

The study population was all health workers involved in maternal death surveillance and response and the community representatives in Sanyati District. The total population involved in MDSR was 230 health workers. We conveniently enrolled 216 health workers into the study. All the 25 maternal death notification forms completed between 2015-2016 in Sanyati District were also reviewed.

Study variables

Among the variables we studied were: usefulness of the system, health worker knowledge, cost of running the system and system attributes (simplicity, data quality, acceptability, representativeness, timeliness, and stability).

Data collection and analysis

Data were collected using pretested interviewer administered questionnaires, key informant interviews, focused group discussion and records review. Quantitative data was analysed using Epi Info 7.2.0.1™(CDC, 2012) and frequencies, medians and proportions were generated. Qualitative data was analysed using Word Cloud software and a word cloud was generated.

Ethical considerations

We obtained written informed consent from all participants. Permission to proceed was obtained from the Ministry of Health and Child Care and the Health Studies Office.

Results

Demography

Two hundred and sixteen respondents were interviewed as primary participants. The majority were nurses214 (99%). The median years working in Sanyati District was 8 (Q1=3; Q3=11) years whilst the median years in service was 8 (Q1=7; Q3=17.5) years for the health workers. The demographic characteristics of respondents are shown in table 1.
Health worker knowledge

The health worker knowledge on maternal death notification and basic definitions was assessed using a battery of five questions. Twenty-seven percent (n=54) and 127(62%) respondents correctly defined a woman of reproductive age and maternal death respectively. The majority of the staff 185(89%) knew the timeline for notifying a maternal death. Presented in table 2 is an assessment of the health worker knowledge.

System attributes
Usefullness

The usefullness of the MDSR system was assessed focusing on whether the health workers were using case notification data and what they were using it for. Eighty percent (n=138) of respondents reported analyzing and using the information for monitoring maternal mortality trends. Ninety-two respondents (53%) reported action being taken following analysis of the information at district level. The training of 41 nurses in emergency obstetric and neonatal care, deployment of nurse midwives in female wards and deployment of nurse midwives to the three furthest rural health facilities was part of the action implemented following analysis of the collected information. Thirty-one percent health workers indicated sharing information with stakeholders in the form of health education, meetings and written reports. All the minutes and reports for the 25 maternal deaths were available. Health workers and clients seeking care at the facilities were the stakeholders involved in information dissemination. There was no involvement of local stakeholders such as village health workers, community representatives and business people in the community. Ninety-two (47%) reported receiving feedback from the District Health Executive among these, 179(83%) reported using the feedback reports. All the health workers (100%) reported that the system should remain in place while 204(98%) perceive the system to be useful. An assessment of the systems usefulness is shown in table 3.

Simplicity

A panel of five questions was used to assess simplicity of the system. Forty-eight (24%) reported having ever completed a maternal death notification form whilst eight (17%) of the respondents reported facing difficulties during the notification process. Difficulties were encountered in classifying the death as either avoidable or not avoidable. The reported average time to complete the maternal death notification form was 60 minutes. The need for specialised training was cited by 162(79%) while 139(68%) reported to be confident to complete a maternal death notification form. Sixty-two percent (n=91) reported easy access to case information. An assessment of the simplicity is shown in table 3.

Data quality, acceptability, timeliness and representativeness

Of the 25 maternal death notification forms analysed, completeness was 100%. All fields were clear and easy to read. All 216 respondents interviewed completed all questions successfully without question refusal. Ninety-four percent were willing to notify a maternal death while 210 (97%) were willing to participate in maternal death review meetings. Nonetheless 163(78%) felt that there was confidentiality during conduction of maternal death audits. Hundred and twenty-two (59%) reported that there was no blaming of individuals during maternal death audits while 62(30%) reported blaming of individuals and 23(11%) felt there was some blame at times. Five of the 25 deaths were notified and reviewed on time (within seven days) of the maternal death. Fifty-nine percent (n=123) health workers reported that, not all community deaths were being picked by the surveillance system. Sixty-two percent of the health workers reported having enough time to complete the maternal death notification forms.
Stability

Forty-eight (23%) of the health workers were trained in maternal death notification. Seventy-two (34%) workers were trained in emergency obstetric and neonatal care, which is an integral part in response to maternal mortality reduction. The completed maternal death notification forms were secured in lockers at all the centers. Maternal death notification forms were readily available and no stock outs were recorded.

**Maternal death audits analysis and recommendations**

Twenty-five maternal deaths were analysed using word cloud. The qualitative analysis of maternal death audits, recommendations and response is shown in Figure 2.

*Figure 2. Word cloud output for qualitative analysis of maternal death audits, recommendations and response, sanyati, 2017.*

First and second delays prolonged the time needed to institute interventions for the patients. Staff shortages at the referral hospital particularly doctor and nurse shortages were linked to maternal deaths. Postpartum haemorrhage was a common cause of maternal deaths. Delayed cross matching and transfusion of blood to patients by on call laboratory personnel was noted to be linked to maternal deaths. Most of the deaths (21/25) were classified as avoidable. Among the recommendations of the audits was prioritization of blood and iv fluids for maternity cases. Team work in managing patients by on call health workers was recommended as part of an effective response strategy.

**Focused group discussion outcomes**

A focused group discussion was conducted in rural Sanyati. The group was made up of four headmen, three village health workers, three councillors and three chief’s representatives. The following concerns were highlighted during the focused group discussion.

a) The chief’s council confirmed that community maternal deaths were occurring because of miscarriages and other complications of pregnancies.

b) Home deliveries were occurring in the communities as reported by village health workers and herdmens.

c) The cost of booking and delivery which was reported to be USD$7 and USD$32 respectively were among the barriers to seeking medical care among pregnant women.

d) Staff attitudes were also a barrier to seeking care at Sanyati Mission Hospital such that the community preferred to seek help from traditional healers and apostolic churches.

e) Doctors were not readily available and there was a high turnover of the same at Sanyati Mission Hospital.

f) Clients were made to pay consultation fees and referred elsewhere to buy medication.
g) There was lack of support for the village health workers by the existing health system.

h) There was no involvement of the local leadership and community in health issues of the district.

Some of the pertinent issues recorded during the focused group discussion are quoted as follows:

Speaker A

‘Nurses at the hospital should be different from soldiers and police force Patients must be free when approaching the hospital’

Speaker B

‘People are afraid and hesitating to seek medical attention at the hospital owing to the bad health worker staff attitudes’

Speaker C

In local language (Shona): ‘Vanamukotivanodaidzwa kana murwereanyaasihavayikuzomubatsira, vanwevachovanouyakuzorapavarwerevakadhakwa’

English translation

‘The nurses do not attend to the sick patients when called for help; some of them attend to patients whilst they are drunk’

Speaker D

in local language (Shona): Hospital irikuremeravanhu, irikuvandancechigumwe, vakadzivakazitakura nevagarivemunovarikunonokakubatsirwabachipatara.

English translation

The hospital has become a burden for the community, they delay offering medical care for the community and pregnant mothers.

Direct resources used to operate the system

The Government of Zimbabwe and partners through the MOHCC provide the resources for operating the MDSR system. At Sanyati Mission Hospital, there was one doctor instead of three as per establishment, no blood bank, no theatre nurse and no functioning ambulance. The doctor, midwife and nurse to population ratio was two, 42 and 74 per 100 00 population respectively.

Cost of auditing and notifying a maternal death

Assuming a nurse’s basic salary of USD$300 per month and 180km being the distance of the furthest clinic from the district offices, the total cost of running the system per institutional maternal death notified was USD$246.09. This was calculated from the time taken for data collection, notification and report writing which was assumed to be 60 minutes per case, call charges of USD$0.09 per minute assuming a maximum of 15 minutes required to convey all case information. Fuel costs for sending maternal death notification form and a health worker to attend maternal death review meeting at the district hospital on separate days was taken into consideration.

Discussion

This descriptive cross-sectional study sought to determine the performance of the MDSR system in Sanayti District 2017. The use of information from this system in monitoring maternal mortality trends indicates acceptability of the system to the users. Had the users not accepted the system this would be reflected by none use of the information generated by this system. Use of information generated by the system is a proxy to the usefulness of the system. However, action was taken in about half of the scenarios. This finding could be explained by
the lack of resources to implement response strategies as was highlighted by the key informants. The lack of a laboratory at Sanyati Mission could have affect the implementation of recommendations following maternal death audits.

The proportion reporting sharing information with stakeholders was low (31%). This could be attributed to nonexistence of a health center committee in Sanyati rural. Focused group discussion findings also highlighted non-involvement of the community representatives and stakeholders. Information concerning the systems performance was shared among health personnel and not shared with the stakeholders. Village health workers also shared their concerns of non-support by the health professionals at the health facilities. The community and respondents were concerned about the lack of feedback on the systems performance from the district health executive. The lack of feedback could be due to competing priorities for the health workers and non-existence of communication channels between the health system and the community. Non involvement of the community and stakeholders in the system and bad health worker attitudes have seen the community resorting to unsafe practices as indicated by the chief’s council.

Most of the respondents could not define a woman of reproductive age which is a woman of age 15 to 49 years. Failure to define this term implies a weakness in the surveillance system, as the workers are not aware of the target group for surveillance of maternal deaths. Not knowing the definition of a maternal death may result in misclassification of deaths and misdirected use of resources. Although forty-eight (24%) respondents reported having ever completed a maternal death notification form, this does not reflect the simplicity of the system. This low proportion is explained by the fact that maternal deaths are rare events hence we expect to have a lower proportion that should have ever completed a form. The difficult area of concern in the notification process was classification of the maternal death as either avoidable or not avoidable.

All the 25 maternal death notification forms were complete and legible. The completeness of the death notification forms is a proxy to the acceptability and simplicity of the system. Had this system been unacceptable and complicated, there could have been incompleteness of the maternal death notification forms. There was no question refusal and no dropouts for all the respondents interviewed, hence implying that the system was acceptable to the users. Acceptability of the system is shown by the majority of respondents who reported willingness to notify deaths (94%) and 97% willingness to continue attending maternal death audits. Nonetheless 163 (78%) reported that confidentiality was maintained during maternal death audits. Health worker confidentiality was difficult to maintain owing to the few health workers at a station such that it would be difficult to maintain confidentiality. Blaming of individuals during conduction of maternal death audits was a concern and reported by 41% of the respondents.

Fifty-nine percent of the health workers reported that; not all community maternal deaths were reported. Among the reasons highlighted were the existence of some religious groups that did not allow their followers to seek health care. The surveillance system was not readily available to capture maternal deaths at community level. The stability of the response component was threatened by lack of resources and expertise. The World Health Organisation (WHO) recommends 10 doctors, 20 midwives and 20 nurses per 100 000 populations. Using the WHO guide, the number of doctors in the district were not adequate. Although the ratios for nurses is above the recommended, there is still inadequate and inefficient distribution of the available human resources to the peripheral health centres. Taking into account the district’s population of 215 842 and the available health facilities, there is still an unmet need for healthcare facilities. The lack of facilities that provide a full comprehensive emergency obstetric and new born care package results in women succumbing to birth related complications. The high population to clinic ratio leads to attrition of health workers and resources thereby compromising the quality of care delivered. The accessibility of roads linking health centres has resulted in delays in transferring patients there by leading to poor outcomes.
The total cost of USD$246 for notifying a single maternal death is justifiable considering the severity of the health event under surveillance. However, this cost will be reduced markedly following full implementation of the electronic notification of maternal deaths that is being piloted.

**Limitation of the study**

Inadequate time and resources limited our ability to comprehensively evaluate the response component of the MDSR system.

**Conclusions**

Following triangulation from several sources, we conclude that the system was useful, not costly, acceptable and simple. However, it was unstable, untimely and not representative. These findings may be attributed to non-involvement of the community and stakeholders, lack of resources and lack of training.

**Recommendations**

We recommend conducting a before and after study to determine effectiveness of community involvement in reporting maternal deaths. We also endorse the introduction of the MDSR system component in nurse midwifery training in order to strengthen case detection and notification. We also recommend increasing posts for health workers involved in the MDSR system and establishing a blood bank at Sanyati Mission Hospital.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Female</td>
<td>155(74)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>56(26)</td>
</tr>
<tr>
<td>Midwife</td>
<td></td>
<td>84(41)</td>
</tr>
<tr>
<td>Registered General Nurse</td>
<td>75(33)</td>
<td></td>
</tr>
<tr>
<td>Primary Care Nurse</td>
<td>50(25)</td>
<td></td>
</tr>
<tr>
<td>Government Medical Officer</td>
<td>2(1)</td>
<td></td>
</tr>
<tr>
<td>Median years in Sanyati District</td>
<td>8(Q₁=3; Q₃=11)</td>
<td></td>
</tr>
<tr>
<td>Median years in service</td>
<td>8(Q₁=7; Q₃=17.5)</td>
<td></td>
</tr>
</tbody>
</table>

**Table 1. Demographic characteristics of respondents, sanyati, 2017**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency of Response n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>Defining a woman of reproductive age</td>
<td>54(27)</td>
</tr>
<tr>
<td>Defining a maternal death</td>
<td>127(62)</td>
</tr>
<tr>
<td>Time limit for notification of maternal death by phone</td>
<td>185(89)</td>
</tr>
<tr>
<td>Time limit of notifying the provincial directorate of a maternal death</td>
<td>120(59)</td>
</tr>
<tr>
<td>Number of maternal death notification forms completed</td>
<td>49(24)</td>
</tr>
</tbody>
</table>
Table 3. Usefulness and simplicity of the mdsr system, sanyati, 2017

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Usefulness</strong></td>
<td></td>
</tr>
<tr>
<td>Analyse information</td>
<td>138(80)</td>
</tr>
<tr>
<td>Monitoring maternal mortality trends</td>
<td>201(97)</td>
</tr>
<tr>
<td>Action after analysis</td>
<td>92(53)</td>
</tr>
<tr>
<td>Information shared with stakeholders</td>
<td>59(31)</td>
</tr>
<tr>
<td>Received feedback from District Health Executive</td>
<td>92(47)</td>
</tr>
<tr>
<td>Use feedback information</td>
<td>85(39)</td>
</tr>
<tr>
<td>Find system useful</td>
<td>204(98)</td>
</tr>
<tr>
<td><strong>Simplicity</strong></td>
<td></td>
</tr>
<tr>
<td>Ever completed a maternal death notification form</td>
<td>48(24)</td>
</tr>
<tr>
<td>Difficulties in completing a maternal death notification form</td>
<td>8(17)</td>
</tr>
<tr>
<td>Confident to complete a maternal death notification form</td>
<td>139(68)</td>
</tr>
<tr>
<td>Needs training to complete a maternal death notification form</td>
<td>162(79)</td>
</tr>
<tr>
<td>Ease of access to case information</td>
<td>91(62)</td>
</tr>
</tbody>
</table>

Acknowledgements

We would like to acknowledge the following organisations and individuals for making our study a success: Kadoma City, Kadoma General Hospital, Simbarashe Tashaya, Obert Chingozo and Blessing Banda.

References


[13]. The Zimbabwe Demographic and Health Survey 2015 key indicators


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