

# Socio Demographic Determinants of Maternal Health Service Utilization among Women 15 to 49 Years in Zambezi District in Northwestern Zambia

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## ABSTRACT

**Background:** Maternal mortality recorded in Zambia is one of the highest in the world.

According to the 2013-14 Zambia Demographic and Health Survey<sup>1</sup>, the mortality ratio was 398/100,000. This ratio is unacceptably high. The aim of this study was to assess the effect of socio-demographic factors on utilization of maternal health care services.

**Methods:** A cross sectional study of the utilization of maternal health services was carried out among 400 women of child bearing age from 15 to 49 years in Zambezi district in north-west Zambia after having received ethical approval from the Eres Converge research ethics committee. Multistage systematic sampling was done from the 12 clinics' catchment areas in the district. To estimate the effect of the socio-demographic variables on maternal health service utilization three outcome variables were used, which were; use of antenatal care services, assisted (facility) delivery and postnatal care services. Logistic regression was used to estimate models of the outcome variables.

**Result:** The results showed that 38.5 percent (154) of the women received antenatal care, 32.3 percent (129) of the women received delivery services while 48.3 percent (193) received postnatal care services. In the logistic regression model, reduced income level was associated with decreased use of antenatal care (OR=0.1, P<0.05). In assisted delivery, increased distance to the health facility was associated with reduced use (OR=0.1, P <0.05). In

postnatal care, reduced education level of the respondent was found to be associated to decreased use of postnatal services (OR=0.51, P<0.05). Increased maternal age was associated with increased utilization of maternal health services (OR=2.1, P<0.05). On the other hand, decision making roles by the male spouse alone or both partners was associated with increased use of postnatal services (OR=4.5, P<0.05).

**Conclusion:** To increase women's utilization of health care services and improve maternal health in Zambia, some crucial steps should be taken on educating women such as integrating of reproductive health programs in the school curriculum. Attention should be given to scaling up male involvement in order to ensure there is understanding of the importance of maternal health services. There is need to strengthen the linkage of postnatal services to under-five services to improve coverage of postnatal services.

## INTRODUCTION

Each year 356,000 women die worldwide from pregnancy-related causes, and many times more women suffer obstetric morbidity. Sub-Saharan Africa, of which Zambia is a part, has accounted for 56 percent of these deaths<sup>2</sup>. According to a World Bank report<sup>3</sup> (2010), 35 percent of these deaths are due to inability to access or utilize the maternal health services in developing countries.

Globally, in developing countries the process of improving women's utilization of maternal health services still has some way to go, where women's often lower status persists and can be reflected in the

socioeconomic disparities that frequently cause women to suffer poorer health<sup>4</sup>.

Regionally, women's health in Africa has traditionally focused upon reproductive health, family planning and safe motherhood<sup>5</sup>. It was not until 1985 at the Third World Conference on Women in Nairobi that a solution to these problems was posed in the commitment to improve the access of women to health and social services that might enhance their own well-being, while at the same time maximizing their contribution to the wider community<sup>6</sup>.

Nationally, various studies have shown low utilization of maternal health services with rates as low as 48 percent for facility deliveries and 28.3 percent for postnatal care utilization in certain provinces in the country<sup>1</sup>.

In this paper, the socio-demographic determinants of maternal health were studied for three outcomes; use of antenatal, assisted (facility) delivery and postnatal services in formal health services. The socio-demographic factors which were investigated in this study included maternal age, educational level, decision making roles in use of health services, number of children, monthly income level, distance to health facility and partner's educational level as to whether they influenced utilization of formal maternal health services in Zambezi district.

The aim of the study was to determine major social demographic factors affecting utilization of maternal health services among women 15 to 49 years in Zambezi district

## **METHODS**

A study on the utilization of maternal health services was carried out among 400 women of child bearing age from 15 to 49 years in Zambezi district in north-west Zambia having received ethical approval from the Eres Converge research ethics committee.

The study design was cross sectional in nature and sampling was done using multistage systematic sampling from the 12 clinics' catchment areas in the district.

To estimate the effect of the socio-demographic variables on maternal health service utilization, logistic regression was used.

## **RESULTS**

### **i. SOCIAL DEMOGRAPHIC CHARACTERISTICS OF STUDY PARTICIPANTS**

The results in Table 1(annex) showed that 38.5 percent (154)of the respondents were between 15 to 24 years followed by 36.8 percent(147) for the age range 25 to 34 years. 76 percent (304) of the respondents and 78.8 percent (315) of their spouses had attained education of primary level and above. 59.6 percent (237) had an income of 500 and above while the 45.3 percent (181) of the respondents had 4 children and above.

### **ii. USAGE OF MATERNAL HEALTH SERVICES**

The results in Table 2 (annex) showed that out of the women interviewed, only 38.5 percent (154) attended antenatal, 32.3 percent (129) delivered from a health facility while 48.3 percent (193) used postnatal care service.

### **iii. LIKELIHOOD OF USE OF ANC SERVICES BY SOCIO-DEMOGRAPHICS CHARACTERISTICS**

The results in Table 3 (annex) showed that income level less than 500 (OR=0.1; P<0.05) was associated with reduced utilization of antenatal services.

### **iv. LIKELIHOOD OF FACILITY DELIVERY ATTENDANCE BY SOCIO-DEMOGRAPHICS CHARACTERISTICS**

The results in Table 4(annex) showed that increased distance from the health facility (greater than 20km) (OR=0.1, P<0.05) was negatively associated with the use of assisted delivery.

## v. LIKELIHOOD OF POST-NATAL ATTENDANCE (PNC) BY SOCIO-DEMOGRAPHICS CHARACTERISTICS

The results in Table 5(annex) showed that reduced educational level (primary level and above) (OR=0.51, P<0.05) was associated with 50 percent less likelihood of use of PNC while decision making by the spouse (male partner) or both partners were involved were associated with increased use of PNC services (P<0.05). In addition, increased maternal age (OR=2.1, P<0.05) was associated with increased postnatal utilization.

## DISCUSSION

A total of 400 women with complete records out of a total of 410 (response rate 97.5 percent) were included in the study to investigate the socio-demographic factors that influence the use of maternal health care services. It was found that 38.5 percent (154) received antenatal care services, 32.3 percent (129) delivered from a health facility and 48.3 percent attended postnatal services as opposed to the national averages of 96, 67 and 53 percent respectively for these services<sup>1</sup>.

Different socio demographic factors were found to be associated with use of antenatal care, delivery and postnatal care services.

The significant determinant of antenatal care amongst the independent variables investigated was income (OR=0.1, P<0.05). The lower income was associated with a reduced use of antenatal services. This could be related to the inability to pay for associated costs like food and transport which may have to be provided by the person seeking the health service despite the service itself being free. This is in line with studies by Govindino and Romash<sup>7</sup> (1997) which cited low income as an obstacle to the use of antenatal care and found that higher social economic status is associated with increased maternal health services compared to lower social economic group.

The significant determinant of use of assisted delivery was the distance to the nearest health

facility (OR=0.1, P<0.05). The results indicate a decreased likelihood of use with the increasing distance to the health facility. The negative association between distance and facility delivery could be due to issues such as the failure to pay for associated costs like transport or failure to walk to the health facility especially where the distance to the health facility is far. Studies by Gleit et al<sup>8</sup> (2003) and Terhi et al<sup>9</sup> (2012) found associated costs in seeking health care services such as transport to be a major factor in the decision to go to a health facility (phase 1 delay) especially in rural areas whereby health facilities are sparsely populated.

The educational level of the respondent was found to be a significant factor in the use of postnatal services (OR=0.5, P<0.05). This could have been due to increased ability to communicate with health providers and understand the messages given by the health providers. The finding can be explained by the notion that mothers with higher levels of education are more likely to be informed about health risks, demand and gain access to healthcare. This is consistent with other studies in literature and due to increased ability to communicate with health providers and understand the messages given by the health providers<sup>10</sup>.

Advanced maternal age (35 - 44 years) was associated with the increased use of postnatal services (OR=2.1, P<0.05). This could be partly explained by the fact that older women understood the importance of postnatal services and were more likely to utilize this service. This is in line with studies by Abose (2010)<sup>11</sup> and Mokomen (1998)<sup>12</sup> who found that older women were more likely than younger women to use maternal health care services.

Decision making roles was associated with utilization of postnatal services. However, instances where both partners were involved in decision making roles was found to be four times as likely to use of postnatal services compared to where the woman herself was the principal decision makers (OR=4.5, P<0.05). This could be explained by the fact that most family resources are controlled by males hence women who went to health facility

without spousal involvement could not have been given the necessary support to fully utilize the maternal health services. This is line with findings from Story and Bougard<sup>13</sup> (2012) which showed that joint decision making is positively associated with increased utilization of maternal health services.

The study also found that where males were principal decision makers, women were twice as likely to attend postnatal care services maternal (OR=2.0, P<0.05). This could be due to the fact being a rural set up; most of the resources in the home were controlled by males.

There were some limitations to the study. The fact that the study was cross-sectional in nature meant that it was impossible to establish causal relations between the independent variables and use of the maternal health services. Due to cultural norms of the respondent, this could have led to the so called 'autonomy effect' which could have resulted in the overstating of role of the husband in relation to decision making roles. To minimize this effect, all the respondents were interviewed alone to ensure that answers given were their own views.

## CONCLUSION

The study showed that certain socio demographic determinants are associated with maternal health utilization. In this research, the income was a determinant of antenatal use; distance was a significant determinant of facility delivery, while maternal age, educational level and decision making roles were determinants of postnatal usage.

The study was unique due to the fact that the findings showed that postnatal utilization was higher compared to antenatal utilization compared to the national trend where antenatal use is higher than postnatal utilization. It showed that in rural areas, the linkage of postnatal use to vital documents such as under-five cards which may be important in later life for obtaining documents such as National Registration cards may provide an area to develop interventions to improve maternal health utilization.

Finally, the study showed that couple decision

making in rural areas was critical in use of maternal health services as most of the resources were controlled by males in rural areas hence this finding could help to develop targeted interventions to improve maternal health interventions in rural areas.

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## ANNEXES

**TABLE 1: SOCIAL DEMOGRAPHIC CHARACTERISTICS OF STUDY PARTICIPANTS**

<b>VARIABLE</b>	<b>NUMBER</b>	<b>PROPORTION ( %)</b>
<b>Distance</b>		
less than 10km	335	83.8
10km to 20km	43	11.0
More than 20 km	22	5.5
<b>Age group</b>		
15 - 24	154	38.5
25 - 34	147	36.8
35 - 44	68	17.0
45-49	31	7.8
<b>Decision making roles</b>		
Woman	259	64.8
Spouse	25	6.3
Both	116	29.0
<b>Birth order</b>		
1 child	99	24.8
2 to 3 children	120	30.0
4 and above	181	45.3
<b>Educational level of spouse</b>		
None	85	21.2
Primary level and	315	78.8
<b>Education Level of</b>		
None	96	23.5
Primary level and	304	76.0
<b>Income Level</b>		
0-500	163	40.4
>500	237	59.6

**TABLE 2: LIKELIHOOD OF USE OF ANC SERVICES BY SOCIO-DEMOGRAPHICS CHARACTERISTICS**

<b>VARIABLE</b>	<b>NUMBER</b>	<b>PROPORTION</b>	<b>OR</b>	<b>P VALUE</b>
Use of antenatal				
<b>Distance</b>				
< 10km	124	31	1	
between 10 & 20 km	15		2.4	0.2
>20 km	15	3.8	3.9	0.1
<b>Age</b>				
15 - 24	61	15.3	1	
25 - 34	58	14.5	0.9	0.9
35 - 44	23	5.8	0.8	0.6
45-49	12	3.0	2.7	0.1
<b>Decision health</b>				
woman	99	24.8	1	
Spouse	8	2.0	1.1	0.9
Both	44	11.0	1.2	0.6
<b>Number of children</b>				
1 child	51	12.8	1.2	0.6
2 to 3 children	37	9.3	0.9	0.9
4 children and above	66	16.5	1	
<b>Education husband</b>				
none	27	6.8	1.4	0.5
Primary	127	31.8	1	
<b>Education</b>				
none	24	6	0.9	0.8
Primary and above	130	32.5	1	
<b>Income</b>				
<500	5	1.3	0.1	0.01
>500	149	37.3	1	

**TABLE 3: LIKELIHOOD OF FACILITY DELIVERY ATTENDANCE BY SOCIO-DEMOGRAPHICS CHARACTERISTICS**

VARIABLES	NU	%	OR	P VALUE
Use of facility deliveries				
<b>Distance</b>				
<10km	11	0.3	1	1
between 10 and 20km	24	6.0	0.4	0.1
>20km	10	0.3	0.1	0.01
<b>Age</b>				
15 - 24	48	12	1	
25 - 34	47	11.8	0.9	0.7
35 - 44	25	6.3	0.9	0.9
45-49	9	2.3	0.7	0.4
<b>Decision health</b>				
Woman	80	20	1	
Spouse	10	2.5	1.4	0.5
Both	39	9.8	1.1	0.6
<b>Number of children</b>				
1 child	23	5.8	0.6	0.2
2 to 3 children	37	9.3	0.8	0.5
4 and above	65	16.3	1	
<b>Education</b>				
none	32	8.0	1.9	0.1
Primary level and above	97	24.3	1	
<b>Education husband</b>				
none	26	6.5	0.9	0.8
Received primary	10	25.8	1	
<b>Income</b>				
<500	55	13.8	0.9	0.9
>500	74	18.5	1	

**TABLE 4: LIKELIHOOD OF POST-NATAL ATTENDANCE BY SOCIO-DEMOGRAPHICS CHARACTERISTICS**

<b>VARIABLE</b>	<b>NU</b>	<b>%</b>	<b>OR</b>	<b>P VALUE</b>
Total number of				
<b>Distance</b>				
<10km	173	43	0.7	0.4
between10&20km		3.8	0.3	0.1
>20km	5	1.3	1	
<b>Age</b>				
15 - 24	72	18.0	1	
25 - 34	70	17.5	1.5	0.2
35 - 44	39	9.8	2.1	0.04
45-49	12	3	0.9	0.9
<b>Decision making</b>				
Woman	105	26.3	1	
Spouse	18	4.0	2.0	0.002
Both	70	17.5	4.5	0.002
<b>Number of children</b>				
1 child	56	16	1.3	0.5
2 to 3children	49	12.3	1.1	0.7
4 and above	88	22.0	1	
<b>Education husband</b>				
none	46	11.5	1.7	0.1
Primary level	147	36.8	1	
<b>Education</b>				
none	33	8.3	0.5	0.03
Primary level	160	40	1	
<b>Income</b>				
<500	75	18.8	0.9	0.01
>500	118	29.5	1	