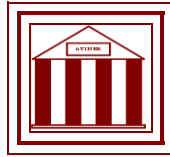


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**SOS2014-1288**

**Health Care Practices by Mothers in the  
Limpopo Province of South Africa:  
Modelling the Case of the Mopani  
District**

**Kwabena A. Kyei**

**Head**

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**Health Care Practices by Mothers in the Limpopo Province of South Africa: Modelling the Case of the Mopani District**

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**Abstract**

**Background:** Child morbidity is high in some parts of the country though there are a lot of interventions available to improve child health and reduce childhood mortality. Some mothers lack knowledge about these interventions and that increases the risk of death of their children and themselves.

**Objective:** This study seeks to find the level of knowledge women, especially mothers in Mopani, have about child health care practices, the kinds of health care practices that they do well, and tries to model the determinants.

**Method:** A 3- stage sample survey was conducted covering all the municipalities in the district. About 1820 women in the child-bearing age (i.e. 13 – 49 years) were sampled and interviewed. Structured questionnaire was used to capture information from these women.

**Results:** From statistical analyses (catreg, logistic and multiple regression) this study concludes that the following variables correlate with child health in the district: age, education, employment and the number of children a woman has.

**Recommendation:** The study recommends primary health care, immunization, oral rehydration therapy and pre-natal medical check-ups during pregnancy for the improvement of child health and survival.

**Keywords:** primary health care, breastfeeding, pre-natal medical check-ups, oral rehydration therapy.

## **Introduction**

Child morbidity and mortality is still high in some parts of South Africa. Infectious diseases that ravage new-born babies and very young children can be effectively prevented or treated if proper health care practices are put in place. Prenatal medical check-up is a key to protecting the health of the unborn child and the mother. Many child related abnormalities and diseases that could affect the health of the unborn baby and the mother could be picked up during prenatal consultations and treated. This can help keep a baby healthy and prevent problems during and after delivery (<http://www.thenews.com.pk/NewsDetail.aspx?ID=13046>).

Many childhood diseases are preventable if proper immunisation is done (CDC, 2009). Children who are not immunized are at high risk of becoming infected with many preventable diseases (Freemster et al. 2009; Department of Health (DoH), 2004; WHO, 2009, 2011). Access to prenatal medical care is critical for reducing maternal and infant morbidity and mortality (UNICEF South Africa, 2008)

This study looks at child care practices in the Mopani district in the Limpopo Province. The main objective is to identify kinds of health practices that women, especially mothers in Mopani know and do well. Research questions being asked are the following: Do mothers in the district breastfeed their babies for a considerable long period, say 2 years? Do they give their children the full immunization coverage needed? Do they know and practise oral rehydration therapy (ORT) when needed? Do they consult medical practitioners for check-ups during pregnancy? And do they deliver their babies in clinics or hospitals with professional health workers in attendance?

## **Methodology**

### *Materials/Data*

The data used were obtained through a survey conducted in six locations from September 2011 and August 2012 in the Mopani district. A 3-stage sampling including stratified random of municipalities and households/dwelling units were done to get the women. The first stage was stratification to get all the municipalities in the district represented. Within a selected municipality, a random sampling was done to get a town or village and once a village or town is selected; systematic sampling was done to get the households/dwelling units. Childbearing women in the sampled households were interviewed. About 1820 women aged between 13 and 50 years were interviewed using structured questionnaire.

### *Methods/Analysis*

There were four dependent variables considered in this analysis, namely; the time for starting prenatal medical check-up during pregnancy, knowledge of oral rehydration therapy (ORT), the duration of breastfeeding, and

consultations at clinic/hospital when child is sick. [Firstly, a chi-square test was done on the categorical data taking the dependent variable as whether a woman/mother knows or not about primary health care. These four variables were among the factors that had strong relationship with the dependent variable, and that was why they were taken.] And there were five independent variables also, namely; age, the level of education, employment status, the number of children that a woman has, and the marital status of the woman. The two categorical variables, i.e. knowledge of ORT and children taken to hospital when ill, were analysed first by cross tabulation before the Logistic and Multiple regression (ordinary least squares) analyses. The interval data were analysed by ordinary least squares (OLS) method of regression.

### *Results*

Table 1 provides information on socio-demographic characteristics of the respondents. Over 49% of the 1820 women interviewed were more than 36 years old while an insignificant 2.2% were teenagers. This is because the target was women/mothers with children so teenagers without children were not interviewed even when they were in the selected households. This is the more reason why teenagers were under-represented. Over 51% were unemployed (not working), 5% were working (for somebody else) and 43% were working for family or for themselves. The distribution of the level of education is as follows: women who had primary education accounted for 2.7%, those completed grade 8 to 11 were 17.7%, women completed grade 12 and other qualifications accounted for 60.9%, those who had tertiary qualifications were 16.4%, and 2.3% of the women did not go to school at all. About 58.5% of the women were married, 4% were cohabiting, 1.6% lived together before but no longer, and 31.5% were divorced.

Table 2 gives information about women whose babies were less than 3 years old and who responded to questions about primary health care. Out of 515 mothers who responded to questions concerning health care, 87.6% remembered some facts about primary health care; 82.6% knew about oral rehydration therapy; 78% reported having given birth to their last child (aged less than 3 years) in hospital; 21.6% gave birth at the clinic with the attendance of a doctor or a professional nurse, and only 0.4% gave birth at home or elsewhere with no professional health attendant assisting. These mothers first saw a health practitioner (a doctor or a midwife) for ante-natal check-up when they were about 3.5 months pregnant and went for a further 4.7 prenatal consultations before the birth of their last child. About 60.3% started prenatal medical check-ups when they were 1 to 3 months pregnant, 33.4% started when they were 4 to 6 months pregnant and 6.3% started when they were 7 to 9 months pregnant. About 20.8% of the women were breastfeeding their little children at the time of the interview. For mothers who were no longer breastfeeding their little ones, the mean period for breastfeeding was 11.8 months.

Table 3 gives some common childhood diseases and their treatments. About 11.6% of the 397 mothers reported that their little children had had

diarrhoea two weeks before the survey and 8.5% of the women’s children had suffered severe cough four weeks prior to the interview. Out of those mothers whose children had suffered severe cough, 85.7% of them took their children to the health care centre for treatment while 14.3% did not. For measles, only 0.5% reported that their children suffered from it 3 months prior to the interview. For women whose children had had measles, only 22.2% of them took their children to health care centre for treatment.

The chi-square test in Table 4 showed a strong relationship between knowledge about ORT and all the independent variables. The result was “confirmed” by logistic regression which showed that knowledge about ORT was indeed related to all the independent variables except marital status (Table 5). On the other hand, in Table 6, the logistic regression showed that the dependent variable – child taken to hospital/clinic when ill – was related to only one variable, i.e. the number of children the woman has. The other independent variables did not have any relationship with it.

After the logistic regression, the data were transformed, to enable multiple regressions (OLS) and General Linear Modelling (ANOVA) to be done as a further confirmation. The results from chi-square test and logistic regression could now be validated (Hosmer and Lemeshow, 2000; Menard, 1995). The results from the general linear model and regressions analyses in Table 8 support the results from chi-square in Table 4 and logistic regression in Table 5, concerning the relationship between ORT and the independent variables. Except marital status that did not correlate with ORT, the rest did. The three variables, viz. age, employment and the number of children, have very strong relationship but the relationship between the level of education and ORT is not strong, acceptable only at the 10% significant level.

Tables 7, 8 & 9 showed the results obtained from OLS analyses. Table 7 showed that the timing of prenatal medical check-ups (TPMC) was negatively related to age, but positively to marital status and the number of children that the woman had. The married start the medical check-up early and the woman with more than 2 children do not necessarily start early. Table 9 showed that the duration of breastfeeding was dependent on age and employment. Thus the employed breastfeed their children for shorter periods while the older women breastfeed theirs for longer periods.

The model is as follows:

*Timing Pre-natal Medical Check-up (TPMC):*

$$\text{TPMC} = 5.142 - 0.076\text{age} + 0.577\text{marital status} + 0.272\text{number of children} \dots\dots\dots(1)$$

**(Unstandardized)**

$$\text{TPMC} = -0.387\text{age} + 0.176\text{marital status} + 0.190\text{number of children} \dots\dots\dots(2)$$

**(Standardized)**

$$\text{Breastfeeding} = 7.548 + 0.206\text{age} - 4.460\text{employment status} \dots\dots\dots (3)$$

**(Unstandardized)**

$$\text{Breastfeeding} = 0.203\text{age} - 0.333\text{employment status} \dots\dots\dots (4)$$

**(Standardized)**

**Children taken to hospital to see a doctor when sick**

Even though the logistic regression analysis showed that the dependent variable correlate with the number of children a woman has (Table 6), the OLS analysis on the contrary, showed no relationship between the dependent variable and the independent variables.

**ORT**

Below are the models from multiple regression. The results from these analyses as seen in Table 8 confirm that educational level, the number of children, age and employment status have an impact on the knowledge about oral rehydration therapy.

$$\text{Knowledge about ORT} = 0.813 - 0.021\text{age} + 0.050\text{educational level} - 0.064\text{employment level} + 0.062\text{number of children} \dots\dots\dots (5)$$

**(Unstandardized)**

$$\text{Knowledge about ORT} = - 0.434\text{age} + 0.042\text{educational level} - 0.074\text{employment level} + 0.071\text{number of children} \dots\dots\dots (6)$$

**(standardized)**

**Discussion**

The older women consult early during pregnancy while the younger women, especially the teenagers, start their prenatal consultations late. Report by *Child trends database* (2010) stated that in the United States, the proportion of ante-natal medical check-ups among teenagers drops steadily as women get older, reaching 2.4% for women in their early thirties. Thus that report supports the findings in this study.

Women staying with partners (married) consult early because most probably their “spouses” put pressure on them to check the status of their unborn child. “Husbands”, especially those begetting their first child are eager to know when the baby is due and would therefore encourage their “wives” to consult. Women with more than 2 children do not necessary start early maybe because of the experience that they have had from previous pregnancies; they

are not obsessed with pregnancy again. With respect to the duration of breastfeeding, Table 8 shows that older women breastfeed their children for a longer period, because they have solid knowledge about the importance of long breastfeeding (Kyei, 1999) . As expected the employed breastfeed their children for a shorter period compared to unemployed or self-employed because of time constraint.

The older women consult early because women who are over 35 years are at high risk of getting high blood pressure and diabetes when pregnant so consulting earlier enables them to detect any unforeseen problem to quickly address it. Mothers who receive late or no prenatal medical check-ups are more likely to have babies with health problems. According to *Child trends database* (2010), they are three times more likely to give birth to a low weight baby, and their babies are five times more likely to die.

The timing of first prenatal medical check-ups is strongly negatively associated with educational level. According to Kiely and Kogan (2001), in the United States in 1988, 92% of mothers with at least college education started their prenatal medical check-ups early compared to 53% of mothers who had less than a high school education. The probability that a pregnant woman will start her prenatal medical check-ups late or does not go for prenatal medical check-ups decreases as her educational level increases. [Unfortunately the negative relationship is not statistically significant in this study.]

Knowledge about ORT is negatively related to employment status and age of the woman but positively related to educational level and the number of children the woman has (see equation 3). Unemployed women from this model are more knowledgeable about ORT than those who are working for somebody else or for family or for themselves. This observation is somewhat startling because one does not see how unemployed can have better knowledge about ORT than the employed. Is it because they are not “working” they get time to attend free workshops organized by medical practitioners? On the other hand, older women are more knowledgeable than younger women; and women with more than 2 children are more knowledgeable than women with fewer children. This study shows that women who are highly educated have more knowledge about ORT than those who are less educated. These results are supported by the study done by Anidi et al. (2002).

## **Conclusion**

The study has revealed that younger women, especially teenagers, start prenatal medical check-ups late and that have negative implications because such practices contribute to higher childhood and maternal death. The proportion of women aged 36+ years who started their prenatal consultations early is more than twice that of women aged 15 to 19 years who started theirs at the same period of pregnancy.



Majority of the women seem to know and understand the use of ORS. Table 4 shows that 92.2% of the respondents knew about ORT and have made use of the solution when their children were ill with diarrhoea. Women's knowledge about ORT was also found to have a relationship with the level of education (p-value =.000) and employment status (p-value =.001).

For the place of birth of their last child whose age was less than 5 years, 78% gave birth to their last child in hospital, 21.6% gave birth at the clinic and only 0.2% gave birth at home. Less than one per cent (0.2%) of the women gave birth somewhere else.

This study recommends that women pursue higher education because the level of education has a positive relationship with health care practices, including prenatal medical check-ups and knowledge about ORT.

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## Appendices

**Table 1.** *Distribution of some Socio-demographic Characteristics of Women in the Mopani District*

<b>Age</b>	<b>(%)</b>
15 – 19	2.2
20 – 25	15.6
26 – 35	32.9
36+	49.3
<b>Total</b>	<b>100</b>
<b>Mean age</b>	<b>34.54 years.</b>
<b>Employment status</b>	
Not working	51.6
Working for self or family	43.0
Working for somebody else	5.4
<b>Total</b>	<b>100</b>
<b>Educational level</b>	
Grade R to 7	2.7
Grade 8 to 11	17.7
Grade 12 to 12+	60.9
Tertiary	16.4
No schooling	2.3
<b>Total</b>	<b>100</b>
<b>Marital status</b>	
Married	58.5
Cohabiting (Living together)	4.0
Widowed	4.2
Divorced	31.5
Lived together previously but no more	1.6
<b>Total</b>	<b>100</b>

**Table 2. Distribution of some Health Indicators practised by Women in Mopani**

<b>Indicators</b>	
<b>Starting time for pre-natal medical check-up during pregnancy</b>	<b>(%)</b>
1 – 3 months	60.3
4 – 6 months	33.4
7 – 9 months	6.3
<b>Total</b>	<b>100</b>
<b>Place of birth of the last child (aged less than 5 years)</b>	
Hospital	78.0
Clinic	21.6
Home	0.2
Other	0.2
<b>Total</b>	<b>100</b>
<b>Breastfeeding</b>	
Yes	20.8
No	79.2
<b>Total</b>	<b>100</b>
<i>Mean duration of breastfeeding months.</i>	<i>11.8</i>

**Table 3. Some Common Childhood Diseases and their Treatment**

<b>Variables</b>	
<b>Has your child had diarrhoea in the last 3 weeks?</b>	<b>(%)</b>
Yes	11.6
No	88.4
<b>Total</b>	<b>100</b>
<b>Was the child given ORS?</b>	
Yes	35.3
No	64.7
<b>Total</b>	<b>100</b>
<b>Was the child taken to health care centre?</b>	
Yes	49
No	51
<b>Total</b>	<b>100</b>
<b>Has your child suffered from severe cough or difficult breathing in the last 4 week?</b>	
Yes	8.5
No	91.5
<b>Total</b>	<b>100</b>
<b>Was the child taken to health care centre?</b>	
Yes	85.7
No	14.3
<b>Total</b>	<b>100</b>
<b>Has your child had measles in the last 3 weeks?</b>	
Yes	0.5
No	99.5
<b>Total</b>	<b>100</b>

<b>Was the child taken to health care centre?</b>	
Yes	22.2
No	77.8
<b>Total</b>	<b>100</b>

**Table 4.** Relationship between knowledge about ORT for the Treatment of Child Diarrhoea and Independent Variables

<b>Age (years)</b>	<b>% of women who can prepare ORS</b>
15 – 19	58.6
20 – 25	79.2
26 – 35	84.9
36+	94.2
All ages	89.5

$$\chi^2 = 30.096$$

$$p\text{- value} = 0.002$$

**Educational Level**

Grade R to 7	50.9
Grade 8 – 11	82.2
Grade 12 & 12+	85.0
Tertiary	92.9

$$\chi^2 = 66.557$$

$$p\text{- value} = 0.000$$

**Employment status**

Working for somebody	84.6
Working for self	87.7
Not working	94.2

$$\chi^2 = 32.956$$

$$p\text{- value} = 0.001$$

**Marital status**

Married/cohabit	87.8
Divorced/widowed/separated	84.6
Others	75.4

$$\chi^2 = 3.463$$

$$p\text{- value} = 0.063$$

**Table 5. Variables in the Equation**

<b>Knowledge about ORT (dependent variable)</b>					
<b>Variables</b>	<b>B</b>	<b>SE</b>	<b>df</b>	<b>Wald</b>	<b>sig</b>
<b>Exp (B)</b>					
No. of children	0.460	0.085	1	29.419	<b>0.000</b>
1.584					
Marital status	-0.191	0.141	1	1.838	0.175
0.827					
Employment	0.325	0.139	1	5.482	<b>0.019</b>
1.385					
Level of education	-0.377	0.202	1	3.504	<b>0.061</b>
0.686					
Age	-0.140	0.013	1	122.942	<b>0.000</b>
0.870					
Constant	2.95	0.361	1	47.812	0.000
12.118					
<b>Went to see a doctor when child is ill (dependent variable)</b>					
<b>Variables</b>	<b>B</b>	<b>SE</b>	<b>df</b>	<b>Wald</b>	<b>sig</b>
<b>Exp (B)</b>					
No. of children	0.994	0.506	1	3.870	<b>0.049</b>
2.702					
Marital status	1.146	1.063	1	1.161	0.281
3.146					
Employment	0.961	1.236	1	0.604	0.437
2.614					
Level of education	-15.851	2358.0	1	0.000	0.995
0.000					
Age	-0.142	0.091	1	2.452	0.117
0.868					
Constant	-4.317	2.925	1	2.178	0.140
0.013					

**Table 6. OLS Analysis**

<b>Starting time (TPMC) (dependent variable)</b>				
<b>Model</b>	<b>Unstandardized coefficient</b>		<b>Standardized</b>	
	<b>B</b>	<b>SE</b>	<b>Beta</b>	<b>t</b>
<b>Sig</b>				
Constant	5.142	0.412		12.486
0.000				
Age	-0.076	0.015	-0.387	-5.072
<b>0.000</b>				
Education	-0.155	0.264	-0.029	-0.586
0.558				
Employment	-0.271	0.169	-0.083	-1.600
0.110				

No. of children	0.272	0.104	0.190	2.623
<b><u>0.009</u></b>				
Marital status	0.577	0.171	0.176	3.382
<b><u>0.001</u></b>				

**Knowledge about ORT** (dependent variable)

Model	B	SE	Beta	t
Constant	0.813	0.053		15.485
<b><u>0.000</u></b>				
Age	-0.021	0.002	-0.434	-12.470
<b><u>0.000</u></b>				
Education	0.050	0.030	0.042	1.690
<b><u>0.091</u></b>				
Employment	-0.064	0.022	-0.074	-2.886
<b><u>0.004</u></b>				
No. of children	0.062	0.012	0.171	5.141
<b><u>0.004</u></b>				
Marital status	0.021	0.023	0.022	0.903
0.367				

**Duration of Breastfeeding** (dependent variable)

Model	B	SE	Beta	t
Constant	7.548	2.064		3.657
<b><u>0.000</u></b>				
Age	0.206	0.006	0.243	3.657
<b><u>0.002</u></b>				
Education	-0.320	1.302	-0.014	-0.245
0.806				
Employment	-4.460	0.784	-0.333	-5.687
<b><u>0.000</u></b>				
No. of children	-0.506	0.510	-0.083	-0.993
0.332				
Marital status	0.820	0.828	0.058	0.991
0.323				