1	Original Research Article
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3	MATERNAL KNOWLEDGE, ATTITUDES AND
4	PRACTICES TOWARDS PREVENTION AND
5	MANAGEMENT OF CHILD DIARRHOEA IN URBAN
6	AND RURAL MASERU, LESOTHO.
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9	ABSTRACT
10 11	Aim: To compare the knowledge, attitudes and practices of mothers in the prevention and management of child diarrhoea, in rural and urban settings of Maseru.
12 13	<b>Methodology:</b> This cross-sectional study was carried out in the Domiciliary (Urban) and Tlali (Rural) Health centres in Maseru, within the period of February to May, 2017. Data was collected from 458

Health centres in Maseru, within the period of February to May, 2017. Data was collected from 458 mothers/caregivers, with 299 (65%) and 159 (35%) from urban and rural settings respectively. Scores were assigned for the level of knowledge, attitudes, and practices. STATA 14.1 was applied to determine the strengths of associations between categories of the maternal characteristics and the outcome variables.

18 Results: Aggregation of participants' knowledge, attitudes, and practices response reveal a statistical 19 significant association with residence. The maternal age range of 30-39 years, P = .03, and mothers with three (3) children, P = .02 were significantly associated with the knowledge of prevention and 20 management of diarrhoea in the rural area. In the urban area, mothers with tertiary education, P = .04, 21 employed, P = .001, unemployed, P = .004, and all categories of monthly income were significantly 22 associated with the knowledge of prevention and management of diarrhoea. For the urban setting, an 23 association between mothers' attitudes and monthly income between M500 - M1399, P = .05 was 24 observed. The practices of mothers/caregivers in the prevention and management of diarrhoea 25 showed no significant differences in the light of the socio-demographic variables in both settings. 26

27 **Conclusion:** The study revealed low level of maternal knowledge, attitudes and practices in 28 prevention and management of child diarrhea in the rural and urban settings, hence the need to 29 strengthen the existing health education messages on both settings.

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31 **Keywords:** Attitude; Diarrhoea; Knowledge; Management; Mother; Practice; Prevention; Rural; 32 Urban.

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### 38 **1. INTRODUCTION**

Diarrhoeal disease is a major public health problem, that results in illness and death among infants and young children in low-income countries [1]. The disease is caused by the faeco-oral passage of a pathogen through contaminated food or water from the stool of one infected person to the mouth of a new host [2, 3]. This, without prompt attention, may result in significant fluid loss, dehydration, and eventually death if the lost fluid is not replaced [4]. The associated risk factors includes; poor hygiene practices, unsafe human waste disposal, lack of safe sanitation, and consuming contaminated drinking water and food [5, 6].

Globally in 2010, it was estimated that there were 1.731 billion episodes of diarrhoea in children below the age of five, and about 700 000 of these episodes led to death [7]. The report further indicates that a high proportion of deaths of about 72 per cent occurs in the first 2 years of life [7]. At a prevalence of 22 per cent, about nine (9) per cent of the under-five mortality rate in Lesotho is attributable to diarrhoea infection (UNICEF, 2013). Furthermore, the survey revealed that urban children are slightly less likely to have diarrhoea than rural children (10% versus 13 %) [8].

52 The study in India revealed a tremendous positive improvement in the maternal levels of KAP after 53 the intervention of a structured educational programme on the prevention and management of 54 diarrhoea [9]. The study in Banjul, Gambia, revealed that a mother's high level of knowledge on 55 childhood diarrhoea was associated with parity (number of children), for mothers of more than two 56 children had a greater knowledge of diarrhoea than mothers of one child. Likewise, mothers with a 57 primary education and above had a better knowledge of diarrhoea when compared to mothers with no 58 formal education [10]. A cross-sectional survey carried out among the rural residents of Sindh in 59 Pakistan revealed poor knowledge on diarrhoea prevention [11]. Only 41 per cent of the respondents 60 identified hand washing as the most important method for prevention of diarrhoea. Furthermore, on prevention, the risk of diarrhoea-related mortality among infants zero to five months of age was 61 62 higher among those who were partially breastfed at relative risk of 4.62, or not breastfed at relative risk of 10.52 when compared to infants who were breastfed exclusively [12]. 63

The maternal/caregivers' attitudes are important in the fight for the prevention of diarrhoea, as they motivate an individual to adopt a safe healthy practice. The study in Korogocho and Bondo communities of Kenya [13] revealed a positive attitude toward hand washing as most of the urban slum and rural mothers show good attitude towards their hand washing habits on the prevention of infectious diseases, but this was greatly influenced by the availability of water which was only accessible by day.

None persistent diarrhoea could be managed successfully at home with the practise of continuous feeding of the child with diarrhoea, offering more fluids and in the correct and appropriate administration of Oral Rehydration Solution (ORS) [14]. The increase in the child's fluid intake through the use of oral rehydration therapy is the basic intervention for dehydration caused by diarrhoea. Factors such as; the level of knowledge of ORT/ORS, the age of the mothers, availability of preppacked ORS and education have been found to significantly influence the use of ORT/ORS in the home management of diarrhoea amongst mothers of under-fives [15].

The general notion that the knowledge, attitude and practice (KAP) of mothers in the urban areas is superior to those in the rural areas could be from gathered perceptions and observations, but with no scientific validation. Identifying the gaps in knowledge, attitudes and practices in relation to settings will help plan specific programmes and implement interventions that will reduce the morbidity and mortality associated with diarrhoea.

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### 83 2. METHODOLOGY

### 84 2.1. Study Setting

The research was carried out in two primary healthcare centres, the Domiciliary Clinic in the urban setting and Tlali Health Centre in the rural setting, in Maseru district, Lesotho. Maseru is one of ten districts, with a population of 389,627 people, representing 20.6 per cent of the country's population [16].

### 89 2.1.1.<u>Study Design and the Study Population</u>

An observational cross-sectional study was conducted on mothers/caregivers who attended either of
 the two primary healthcare centres.

### 92 2.1.2.Method of Selecting Sample

Mothers who attended either of the two primary healthcare centres were consecutively enrolled in the study provided they fell within the inclusion criteria at the time of data collection.

### 95 Sample Size

96 The sample size was determined on the basis of the national under-five diarrhoeal disease 97 prevalence, which is at 22 per cent for Lesotho [8].

98 The formula for the minimum sample size needed for an interval estimate of a population proportion at
99 95 per cent confidence interval and five per cent margin of error was:
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103 Where n is the sample size without the source

$$nf = \frac{n}{1 + \frac{n}{N}} = 404$$

- 104 Ten per cent for no response = 40
- 105 Total sample size = 444
- 106 Where  $nf = final \ sample \ size \ with \ source$

107 N is the total number of the study population [14,000 (Domiciliary) + 7,221(Tlali clinic) = 21,221].

Based on the proportion of the total population of the two clinics, the Domiciliary and Tlali health centres will have the sample size of 292 and 152 respectively, totalling 444. In the field, the total number of respondents was 299 and 159 in the urban and rural healthcare centres respectively, making a total of 458 respondents.

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### 113 **2.2. Measurement Instrument and Data Collection Technique**

An already existing standardised questionnaire was adapted [10], translated from English to Sesotho (local language), and administered to the participants in the two clinics. Two trained skilled nurses, one in each of the clinic assisted in the filling of the questionnaire.

### 117 2.2.1.Data Quality Assurance

118 This was achieved through the test and retesting (testing twice) of the questionnaire during the pilot 119 study, on a small scale of ten per cent of the sample size in the two centres.

### 2.2.2. Data Handling/Processing

121 The electronic data was entered into a spreadsheet and coded. The score was assigned for the level 122 of knowledge, attitude, and practice, while STATA 14.1 was used for the regression data analysis. 123 Multiple logistic regression analysis was used to determine the relationship between the dependent 124 variables and socio-demographic variables in the urban and rural settings separately.

### 125 **2.3. Operational Definitions**

- Good knowledge: Those mothers who scored three (3) and above from the maximum attainable scoreof five (5) for the knowledge questions.
- Poor knowledge: Those mothers who scored two (2) and below from the maximum attainable score of
   five (5) for the knowledge questions.
- Good attitude: Those mothers who scored three (3) and above from the maximum attainable score of five (5) for the attitude questions.

- Poor attitude: Those mothers who scored two (2) and below from the maximum attainable score offive (5) of the attitude questions.
- Good practice: Those mothers who scored three (3) and above from the maximum attainable score of five (5) of the practice questions.

Poor Practice: Those mothers who scored two (2) and below from the maximum attainable score of five (5) of the practice questions.

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### 139 3. RESULTS AND DISCUSSION

### 140 **3.1. Results**

### 3.1.1. Participants' Distribution and Profile

A total of 458 mothers/caregivers participated in the study, with urban and rural residents constituting 65 per cent and 35 per cent respectively. The mean age (SD) of respondents was 28.7 (5.1) years in the urban setting, while that of rural setting was 28.4 (9.3) years. In both settings, majority were within the age range of 20 – 29 years (50.8% in urban and 53.5% in the rural). More than half of the respondents were married (60.9% in the urban and 83.6% in the rural setting). Ninety-eight (98.1%) and 24.4 per cents of the respondents in the rural and urban settings respectively were unemployed (Table 1).

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### 150 Table 1: Percentage Distribution of Mothers/Caregivers Place of Residence by Socio-

### 151 **Demographic Variables**

Socio-demographic variables	Category	Urban (%)	Rural (%)
Mother's Age Group	≤ 19 years	5.4	10.1
	20-29	50.8	53.5
	30-39	43.8	27.0
	≥40	0.0	9.4
0	Total	100.0	100.0
Marital status of the mother	Married	60.9	83.6
	Not married	25.4	16.4
	Divorced	13.7	0.0
	Total	100.0	100.0
How many children do you have?	One	35.8	50.9
	Two	49.8	29.6
	Three	12.7	8.2
	Four and above	1.7	11.3
	Total	100.0	100.0
Age of child	0-11	6.7	26.4
	12-35	40.5	55.3
	36-59	52.8	18.2
	Total	100.0	100.0
What is your highest level of			
education?	Primary	27.4	45.3

	Secondary	60.5	38.4
	Tertiary	9.0	16.4
	Non formal	3.0	0.0
	Other(specify)	0.0	0.0
	Total	100.0	100.0
What is the employment status			
of mother?	Self-employed	6.8	0.6
	Employed	48.8	1.3
	Unemployed	24.4	98.1
	Total	100.0	100.0
What is the monthly income of			
the mother?	<500 500-1399	8.0 19 <i>4</i>	0.6
	4400 5000	0.7	1.0
	1400-5000	8.7	0.0
	more than 5000	1.7	0.0
	I don't want to say	37.8	0.0
	No income	24.4	98.1
	Total	100.0	100.0

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### 3.1.2. Mothers' Knowledge on Diarrhoeal Disease Prevention and Management

On the mothers'/caregivers' perceived causes of diarrhoea, the majority (93% in urban and 93.7% in rural) of the respondents perceived that unclean water was the main cause of diarrhoea (figure 1). The rural respondents did not perceive that specific germs were causes of diarrhoea. Only 6.9 per cent of them mentioned germs as a cause of diarrhoea and 98.1 per cent identified excessive heat (fever) and teething during childhood as causes of diarrhoea.

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## 164 Fig. 1. Maternal Knowledge on the Causes of Diarrhoea

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### 3.1.3. Mothers' knowledge on the signs of diarrhoea

167 In the total population of respondents, 10.7 per cent of the respondents in the urban setting, and 32.1

168 per cent of the rural respondents cited sunken fontanel as a severe form of diarrhoea. Also, only 13

169 per cent and 31.4 per cent of respondents in the urban and rural respectively recognised that crying 170 without tears is a severe form of diarrhoea. Ninety-nine per cent and 95.6 per cent in the urban and 171 rural settings respectively, were aware that the infection was preventable (Table 2).

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### 3.1.4. Mothers' Attitudes on Diarrhoeal Disease Prevention and Management

174 Maternal attitudes in this context includes their perception on the benefit of exclusive breastfeeding, 175 increased frequency of breastfeeding and administration of fluid during diarrhoea. On the aspect, 100 176 per cent and 98.3 per cent of the respondents in the rural and urban settings cited the benefit of 177 exclusive breastfeeding in the prevention and management of diarrhoea. Ninety-three per cent and 178 97.5 per cent of the respondents in the urban and rural settings respectively, agreed that 179 breastfeeding should be increased when the child is infected with diarrhoea (Table 2). In the same 180 vein, 89 per cent and 98 per cent of the respondents in the urban and rural settings respectively are of 181 good attitudes towards fluid increase for child during diarrhoeal episodes.

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### 3.1.5. Mothers' Practices on Diarrhoeal Disease Prevention and Management

185 In terms of the method of prevention adopted by respondents (Table 2), a large percentage (93.6% in 186 the urban and 96.2% in the rural setting) agreed that prevention of diarrhoea in under-five children 187 can be achieved by the washing of hands with soap and water after contact with a child's faecal 188 matter. Only 11.9 per cent of the rural respondents practiced safe and hygienic preparation of food for 189 diarrhoeal prevention (Table 2). In the urban setting, 64.5 per cent of the respondents gave ORS/SSS as the first line of management to a child with diarrhoea, compared to 8.2 per cent of mothers in the 190 191 rural setting. The majority of mothers (91.8%) in the rural setting preferred to go to the health centres. 192 On the use of homemade ORS/SSS, in the management of child diarrhoea, this was only practiced by 67.6 per cent and 45.9 per cent of mothers in the urban and rural settings respectively. 193

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# Table 2: Maternal Knowledge of Symptoms of Child Diarrhoea, Attitudes Towards Child Diarrhoea, Prevention and Management of Child Diarrhoea

Variables	Urban (%)	Rural (%)
Knowledge		
Maternal knowledge: Sunken fontanel as a severe form of diarrhoea	10.7	32.1
Maternal knowledge: Cry without tears as a severe form of diarrhoea	13.0	31.4
Maternal knowledge: Diarrhoea is preventable	99.3	95.6
Attitude Maternal attitude that exclusive breastfeeding is beneficial Maternal attitude to breastfeed increase for child with diarrhoea Maternal attitude to fluid increase for child with diarrhoea	98.3 93 89	100 97.5 98
Preventative and Management Practices Mother's preventative practices for child diarrhoea		
Washing your hands with soap and water after being in contact with a child's faecal matter	93.6	96.2
Safe and hygienic preparation of food	96.0	11.9
Safe and hygienic disposal of faecal and contaminated materials	20.7	9.4
Mother's first line of management for child diarrhoea		
Give oral rehydration solution or ready-made sachets	64.5	8.2
Go to a health centre	23.4	91.8
Maternal use of homemade ORS/SSS	67.6	45.9
Maternal correct mixing of homemade ORS/SSS	64.9	5.7

### 199 3.1.6.<u>Maternal Aggregated Score of KAP Response by Residence</u>

Table 3 below revealed that maternal knowledge, attitudes and practices were all statistically significant with residence, at a P = value of .001, .000 and .000 respectively. In all, 77.9, 83.9, and 67.9 per cents of the respondents in the urban setting had good knowledge, attitude and practices respectively as compared to 63.9, 96.9 and 49.1 per cents that had good knowledge, attitude and practices respectively in the rural.

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### 206 Table 3: Maternal/Caregiver's Knowledge, Attitude, and Practices (KAP) by residence

Maternal KA	Р	Residence		Pearson Chi-square test		
		Rural (%)	Urban (%)			
Knowledge	Good knowledge	63.5	77.9	.001		
-	Poor knowledge	36.5	22.1			
Attitude	Good attitude	96.9	83.9	.000		
	Poor attitude	3.1	16.1			
Practice	Good practice	49.1	67.9	.000		
	Poor practice	50.9	32.1			

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210	3.1.7.Associated Factors of	Maternal Knowledge,	Attitudes	and Practice in Relation to
211	Residence			

In the rural setting (Table 4). Mothers/caregivers who were 30-39 years were approximately 79 per cent less likely to have good knowledge as compared to mothers below the age of 19 years (*AOR*: .21, P = .03). Mothers with three (3) children were approximately eight times more likely to have good knowledge as compared to those with one child (*AOR*: 7.66, P = .02).

#### Table 4: Multiple Logistic Regression Analysis of Socio-demographic Characteristics and Maternal KAPs on Diarrheal Prevention and 216

Management in Under-five Children (Rural Residence) 217

Demographic (	Characteristics		Knov	wledge			A	ttitude			Prac	tice	
		Poor (%)	Good (%)	AOR(CI)	P-Value	Poor (%)	Good (%)	AOR(CI)	P-Value	Poor (%)	Good (%)	AOR(CI)	<i>P</i> - Value
Age of the	< 19	4(25.0%)	12(75%)			1(6.3%)	15(93.8%)		-	9(56.3%)	7(43.8%)		
mother or caregiver	20-29	29(34.1%)	56(65.9)	0.58(0.17,2.06)	.40	3(3.5%)	82(96.5%)	2.74(0.16,46.2)	.49	48(56.5%)	37(43.5%)	0.92(0.30,2.85)	.89
(years)	30-39	20(46.5%)	23(53.5%)	0.21(0.05,0.88)	.03	1(2.3%)	42(97.7%)	7.14(0.21,248)	.28	20(46.5%)	23(53.5%0	1.28(0.34,4.77)	.72
	40 +	5(33.3%)	10(66.7%)	0.20(0.03,1.33)	.10	0(0%)	15(100.0%)	1	-	4(26.7%)	11(73.3%)	2.82(0.47,16.9)	.26
Marital status	Married	48(36.1%)	85(63.9%)			3(2.3%)	130(97.7%)	-		66(49.6%)	67(50.4%)		
of the mother	Single (Not	10(38.5%)	16(61.5%)	0.88(0.34,2.23)	.78	2(7.7%)	24(92.3%)	0.56(0.07,4.82)	.60	15(57.7%)	11(42.3%)	0.87(0.36,2.12)	.76
	married) Divorced	0(0%)	0(0%)	-	-	0(0%)	0(0%)	-	-	0(0%)	0(0%)	-	-
Number of	One	31(38,3%)	50(61.7%)		_	2(2.5%)	79(97.5%)	_		46(56.8%)	35(43.2%)	_	
Number of children	Тжо	20(42.6%)	27(57.4%)	1 20(0 51 2 79)	68	3(6.4%)	44(93.6%)	0 13(0 01 1 31)	08	23(48.9%)	24(51 1%)	1 19(0 53 2 67)	68
	Three	20(42.070)	11(84.6%)	7 66(1 32 44 6)	.00	0(0.0%)	13(100%)	0.13(0.01,1.31)	.00	5(38.5%)	8(61.5%)	1.39(0.36.5.44)	.00
	Fourt	5(27.8%)	13(72.2%)	4 05(0 92 47 8)	.02	0(0.0%)	18(100%)	1	_	7(38.0%)	11(61 1%)	1.09(0.28.4.22)	.04
		5(27.070)	13(72.270)	4.03(0.92,17.0)	.00	0(0.070)	10(100 %)	I	-	7(30.970)	11(01.170)	1.09(0.20,4.22)	.90
Education	Primary	26(36.1%)	46(63.9%)		-	0(0%)	72(100.0%)	1		33(45.8%)	39(54.2%)		
level	Secondary	21(34.4%)	40(65.6%)	1.27(0.58,2.77)	.55	3(4.9%)	58(95.1%)	2.55(0.28,23.1)	.41	32(52.5%)	29(47.5%)	0.81(0.39,1.67)	.57
	Tertiary	11(42.3%)	15(57.7%)	0.95(0.35,2.66)	.92	2(7.7%)	24(92.3%)	1	-	16(61.5%)	10(38.5%0	0.65(0.24,1.76)	.40
	Non-formal	0(0%)	0(0%)		-	0(0%)	0(0%)	-	-	0(0%)	0(0%)		
	Other(specify)	0(0%)	0(0%)	-	-	0(0%)	0(0%)	-	-	0(0%)	0(0%)		
Employment	Self Employed	1.0(100%)	0(0%)	1		0(0%)	1(100.0%)	1	-	0(0%)	1(100.0%)	1	-
status	Employed	1.0(50%)	1(50.0%)	0.73(0.04,25.2)	.83	0(0%)	2(100.0%)	1	-	0(0%)	2(100.0%)	1	-
	Unemployed	56(35.9%)	100(64.1%)	1	-	5(3.2%)	151(96.8%)	1	-	81(51.9%)	75(48.1%)	1	-

	Pensioner	0(0%)	0(0%)	-	- 0(0%)	0(0%)		0(0%)	0(0%)	
	Receiving Disability Grant	0(0%)	0(0%)		0(0%)	0(0%)		0(0%)	0(0%)	
	Other(specify)	0(0%)	0(0%)	-	- 0(0%)	0(0%)		0(0%)	0(0%)	
Monthly	< 500	1.0(100%)	0(0%)	1	- 0(0%)	1(100.0%)		0(0%)	1(100.0%)	1
income (Maloti)	500-1399	1.0(50%)	1(50.0%)	1	0(0%)	2(100.0%)	1	0(0%)	2(100.0%)	1 -
(maioti)	1400-5000	0(0%)	0(0%)	-	- 0(0%)	0(0%)		0(0%)	0(0%)	
	> 5000	0(0%)	0(0%)	-	- 0(0%)	0(0%)		0(0%)	0(0%)	
	l don't want to say	0(0%)	0(0%)		0(0%)	0(0%)		0(0%)	0(0%)	
	No income	56(35.9%)	100(64.1%)	1	- 5(3.2%)	151(96.8%)	1 -	81(51.9%)	75(48.1%)	1 -

\*AOR = Adjusted Odd Ratio, CI = Confidence Interval. -- = reference category - = omitted/ empty

219 In the urban setting (Table 5). Mothers/caregivers with a tertiary education were 72 per cent 220 less likely to have good knowledge as compared to mothers with a primary education (AOR: .28, P = .04). Employed mothers/caregivers were approximately 80 per cent less likely to have 221 good knowledge as compared to the self-employed mothers (AOR: .17, P = .001). Unemployed 222 mothers/caregivers were approximately six times more likely to have good knowledge as 223 compared to the self-employed mothers (AOR: 5.56, P= .004). Mothers/caregivers with a 224 225 monthly income of M500-M1319 (AOR: 5.97, P =.01), M1400-M5000 (AOR: 9.37, P =.003), and 226 more than M5000 (AOR: 23.35, P = .01) were six, nine and 23 times respectively, more likely to 227 have good knowledge as compared to the mothers/caregivers with a monthly income of less 228 than M500.

Mothers/caregivers with non-formal education were 82% less likely to have good attitude as compared with mothers with primary education (*AOR*: .18, P = .05). Mothers with a monthly income of between M500-M1399 were four times more likely to have a good attitude as compared to mothers with a monthly income of less than M500 (*AOR*: 3.9, P = .05).

#### Table 5: Multiple Logistic Regression Analysis of Socio-demographic Characteristics and Maternal KAPs on Diarrheal Prevention and 233

Management in Under-five Children (Urban Residence) 234

234	Manageme	nt in Under-	five Childre	n (Urban Reside	nce)								
Demographic	Characteristics	Knowledge				Attitude				Pr	actice		
		Poor (%)	Good (%)	AOR(CI)	<i>P</i> -Value	Poor (%)	Good (%)	AOR(CI)	P-Value	Poor (%)	Good (%)	AOR(CI)	P-Value
Age of the	< 19	2(12.5%)	14(87.5%)			5(31.3%)	11(68.8%)		-	6(37.5%)	10(62.5%)		
mother or	20-29	33(21.7%)	119(78.3%)	0.66(0.11,4.08)	.66	23(15.1%)	129(84.9%)	2.84(0.78,10.4)	.12	47(30.9%)	105(69.1%)	1.04(0.33,3.31)	.94
caregiver	30-39	31(23.7%)	100(76.3%)	0.56(0.09,3.57)	.54	20(15.3%)	111(84.7%)	2.75(0.70,10.8)	.15	43(32.8%)	88(67.2%)	0.85(0.26,2.78)	.79
(years)	40 +	0(0%)	0(0%)	-	-	0(0%)	0(0%)	V <u> </u>	-	0(0%)	0(0%)	-	-
Marital	Married	43(23.6%)	139(76.4%)			32(17.6%)	150(82.4%)	-		54(29.7%)	128(70.3%)		
status of the	Single (Not	16(21.1%)	60(78.9%)	1.00(0.45,2.22)	1.00	11(14.5%)	65(85.5%)	1.27(0.54,2.98)	.59	26(34.2%)	50(65.8%)	0.96(0.51,1.81)	.91
mother	married)												
	Divorced	7(17.1%)	34(82.9%)	1.43(0.51,4.08)	.50	5(12.2%)	36(87.8%)	1.63(0.54,4.97)	.39	16(39.0%)	25(61.0%)	0.74(0.35,1.58)	.44
Number of	One	25(23.4%)	82(76.6%)			19(17.8%)	88(82.2%)			36(33.6%)	71(66.4%)		
children	Тwo	28(18.8%)	121(81.2%)	1.46(0.69,3.09)	.32	20(13.4%)	129(86.6%)	1.28(0.56,2.91)	.56	51(34.2%)	98(65.8%)	0.92(0.51,1.66)	.78
	Three	1128.9%)	27(71.1%)	0.70(0.25,2.00)	.51	8(21.1%)	30(78.9%)	0.61(0.20,1.89)	.39	8(21.1%)	30(78.9%)	2.30(0.87,6.08)	.09
	Four +	2(40.0%)	3(60.0%)	0.27(0.04,1.95)	.19	1(20.0%)	4(80.0%)	0.51(0.05,5.43)	.57	1(20.0%)	4(80.0%)	2.32(0.23,23.8)	.48
Education	Primary	19(23.2%)	63(76.8%)		- (	15(18.3%)	67(81.7%)			25(30.5%)	57(69.5%)		
level	Secondary	32(17.7%)	149(82.3%)	1.44(0.66,3.12)	.36	21(11.6%)	160(88.4%)	1.41(0.64,3.11)	.40	63(34.8%)	118(65.2%)	0.86(0.47,1.58)	.63
	Tertiary	11(40.7%)	16(59.3%)	0.28(0.09,0.92)	.04	8(29.6%)	19(70.4%)	0.37(0.11,1.27)	.11	7(25.9%)	20(74.1%)	1.17(0.40,3.48)	.77
	Non- formal	4(44.4%)	5(55.6%)	0.74(0.15,3.76)	.72	4(44.4%)	5(55.6%)	0.18(0.03,1.03)	.05	1(11.1%)	8(88.9%)	2.47(0.26,23.5)	.43
	Other(specify)	0(0%)	0(0%)	- //	-	0(0%)	0(0%)			0(0%)	0(0%)	-	-

Employment	Self Employed	12(15%)	68(85.0%)			10(12.5%)	70(87.5%)		- /	22(27.5%)	58(72.5%)		
status	Employed	45(30.8%)	101(69.2%)	0.17(0.06,0.46)	.001	24(16.4%)	122(83.6%)	0.69(0.26,1.80)	.45	46(31.5%)	100(68.5%)	0.77(0.39,1.50)	0.44
	Unemployed	9(12.3%)	54(87.7%)	5.56(1.71,18.0)	.004	14(19.2%)	59(80.8%)	1.76(0.55,5.63)	.34	28(38.4%)	45(61.6%)	0.41(0.13,127)	.12
	Pensioner	0(0%)	0(0%)	-	-	0(0%)	0(0%)	-	<u> </u>	0(0%)	0(0%)	-	-
	Receiving	0(0%)	0(0%)	-	-	0(0%)	0(0%)			0(0%)	0(0%)	-	-
	Disability												
	Grant												
	Other(specify)	0(0%)	0(0%)	-	-	0(0%)	0(0%)	-	-	0(0%)	0(0%)	-	-
Monthly	Less than 500	13(54.2%)	11(45.8%)			7(29.2%)	17(70.8%)	-		5(20.8%)	19(79.2%)		
income	500-1399	17(29.3%)	41(70.7%)	5.97(1.73,20.6)	.01	8(13.8%)	50(86.2%)	3.90(1.02,14.9)	.05	12(20.7%)	46(79.3%)	1.06(0.31,3.62)	.93
	1400-5000	9(34.6%)	17(65.4%)	9.37(2.14,41.0)	.003	5(19.2%)	21(80.8%)	2.85(0.60,13.7)	.19	5(19.2%)	21(80.8%)	1.34(0.30,5.93)	.70
	more than	2(40.0%)	3(60.0%)	23.35(2.04,267)	.01	2(40.0%)	3(60.0%)	2.33(0.21,25.4)	.49	0(.0%)	5(100.0%)	1	-
	5000												
	I don't want to	16(14.2%)	97(85.8%)	21.35(5.94,76.7)	.00	12(10.6%)	101(89.4%)	4.43(1.31,15.0)	.02	46(40.7%)	67(59.3%)	0.45(0.15,1.37)	.16
	say												
	No income	9(12.3%)	64(87.7%)	1		14(19.2%)	<u>59(80.8%)</u>	1	-	28(38.4%)	45(61.6%)	1	-

\*AOR = Adjusted Odd Ratio, Cl = Confidence Interval -- = reference category - = omitted/ empty

### **3.2. Discussion**

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### 3.2.1. Demographic Profile

In this study, mothers/caregivers in the age group of 20 -29 years constituted the majority of the respondents in both settings. A study in India [9] and Pakistan [17], reported similar finding, for the highest number of respondents were within the age group of 20 - 29 years. The rural respondents had higher numbers of children (parity), at four children and above compared to urban respondents. This finding is congruent with the characteristics of households in Lesotho [16].

243 In the study, highest number of respondents completed secondary school level in the urban setting as 244 compared to the rural settings with highest percentage of respondents completing primary school 245 level. The lower percentage recorded in the rural setting on secondary school level could partly be as a result of the limited educational facilities particular to the rural setting on this cadre. There were 246 247 more employed respondents in the urban, as compared to the rural setting. Therefore, the majority of 248 respondents in the rural setting had no source of income. This was in tandem with the demographic 249 survey previously conducted in Lesotho [8], with a higher employment status in the urban setting 250 compared to the rural settings.

# 3.2.2.<u>Respondents' Knowledge on Prevention and Management of Diarrhoea (Figure 1</u> and Table 2 and 3)

253 On both settings, practically all respondents agreed that unclean water contributed to diarrhoea, 254 results which were contrary to the study conducted in Kanyakumari district, South India [18], where 255 only four per cent of respondents identified unclean water as a cause of diarrhoea. The knowledge 256 about the association between diarrhoea being caused by germ was poor in the rural setting, where almost all respondents cited teething as the main cause of diarrhoea. On the contrary, in the urban 257 258 setting, virtually all respondents cited germs as a cause of diarrhoea, but two third of the respondents 259 likewise cited teething as a possible cause (Figure 1). This is supported by the study conducted in 260 North of Saudi Arabia, where three quarter of the informants cited teething as a possible cause of 261 diarrhoea [19]. On severity, only 11 and 32 per cents of respondents in the urban and rural settings 262 respectively recognised sunken fontanel as severe sign of diarrhoea. This is similar to the study in the 263 rural community in Kenya where only 3.1 per cent [14] of the respondents recognised sunken fontanel 264 as severe sign of diarrhoea. In terms of prevention, respondents on both settings had good 265 knowledge that diarrhoeal disease was preventable.

266 In the study, on the average, the level of good knowledge on the prevention and management of 267 diarrhoea was higher among the urban respondents as compared to the rural respondents (Table 3). 268 This can be linked to the observation made in the study conducted in Ghana, where the risk of 269 childhood diarrhoea was found to be significantly higher in rural areas than urban areas [20]. Though 270 the level of knowledge in the prevention and management of diarrhoea in the two settings was above 271 average (higher in the urban). This will be considered insufficient when related to the study carried out 272 in Pakistan [21] where the level of respondents' knowledge was 75 per cent. The difference in the 273 level of knowledge observed in this study between the two settings, might have been due to the 274 access of more information on the prevention and management of diarrhoea in the urban setting, 275 secondary to the availabilities of more healthcare facilities in this setting as compared to the rural 276 setting.

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### 3.2.3.<u>Respondents' Attitudes to Prevention and Management of Diarrhoea (Table 2 and</u> 3)

279 The study revealed that, the respondents in the rural and urban settings had good attitudes to 280 breastfeeding and recommended that it be increased in the event that a child has diarrhoea. This was 281 in line with a study done in Kosovo where more than 75 per cent of respondents breastfed their 282 babies more than usual during episodes of diarrhoea [22]. Similarly, increased fluid intake was 283 believed to benefit a child in the case of diarrhoea, which was affirmed by the respondents in both 284 settings. This was however contrary to a previous health survey conducted in Lesotho where 28.8 per 285 cent of urban and 19.3 per cent of rural respondents believed that increased fluid intake was 286 beneficial during diarrhoea [8]. The difference between this study's findings and the Lesotho Health 287 Survey (LDHS) may be due to recent improvements in attitudes due to information received on this 288 aspect. Furthermore, it may be due to differences in population size, settings and methods adopted in 289 the LDHS study. Respondents on both settings had good attitudes towards exclusive breastfeeding, 290 but with higher percentage in the rural setting. These findings were however contrary to findings of a 291 study conducted in Anantapur district in India, where only 8.9 per cent of the respondents had good

attitudes to exclusive breastfeeding [9]. This could be due to the fact that higher numbers of rural
 respondents were unemployed, and could afford more time with their children, therefore increasing
 the chances to exclusively breastfeed their children as compared to their urban counterparts.

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# 3.2.4.<u>Respondents' Practices on Prevention and Management of Diarrhoea (Table 2 and 3)</u>

297 There was high level of good practice on both settings on washing of hands with water and soap 298 when hands were contaminated with a child's faecal matter. The importance of this practice was 299 revealed in the conclusions drawn from systemic review of literatures in the low- and middle-income 300 countries in Asia, where diarrheal morbidity was reduced by one-third through hand washing 301 interventions [23]. The study revealed a poor practice in the rural setting on the part of safe and 302 hygienic preparation of food as a useful exercise in the prevention and management of diarrhoea, 303 unlike in the urban. This was in line with findings in rural Soweto, South Africa where only 1.5 per cent 304 of the respondents practiced hygienic practices such as the washing of utensils and bottles when 305 preparing SSS [24]. Reasons could be that there may be assumptions that utensils were generally 306 clean therefore need no further washing with water and soap before use.

307 In the management of diarrhoea, two-third of the urban respondents cited the use of oral rehydration 308 solution or ready-made sachets as the first line of management, while less than a tenth of the rural 309 respondents agreed to similar practice. A study conducted in Asia and Africa, reported only a fifth of caretakers who gave their children ORS [25]. Majority of the respondents in the rural settings 310 311 preferred going to a health centre as the first line of management, unlike in the urban, where minority 312 (a fifth) cited similar practice. Only two-third of the urban respondents used homemade oral 313 rehydration solution, while less than half of the rural respondents had similar practice. This is similar 314 to the study in Kanyakumari district, south India, where only 50 per cent of respondents prepared 315 ORS at home [18]. In terms of the correct mixing of SSS, less than a tenth of rural respondents knew 316 how to correctly mix the solution, unlike in the urban, where two-third can correctly do proper mixing 317 of the solution. This was similar to a study done in Johannesburg, South Africa, where only 21 per 318 cent of mothers/caregivers correctly prepared homemade ORS [24]. Other studies in Nigeria [26] and 319 India [27] similarly reported these findings in like manner.

320 321

### 3.2.5.Factors Associated with KAP Outcome in the Prevention and Management of Diarrhoea (Table 4 and 5)

322 In the rural setting, age and the number of children (parity) by the respondents were significant factors 323 (predictors) for their knowledge on the prevention and management of diarrhoea. The older age 324 category of 30-39 years is more at risk on good knowledge as compared to the reference category (≤ 325 19 years), and this might be due to the fact that the older mothers might not have had access to 326 formal education, unlike the younger ones. Likewise, mothers with three (3) children were more likely 327 to have good knowledge as compared to those with one child. It can be inferred that such mothers 328 with a high parity had more experience and prior knowledge and understanding of diarrhoea 329 prevention and management. This is similar to studies carried out in Gambia [10] and Nepal [28].

330 In the urban setting, educational level, employment status, and monthly income were predictors in the 331 prevention and management of diarrhoea in under-five children. Mothers/caregivers with tertiary 332 education were less likely to have good knowledge as compared to those with a primary education. 333 This is contrary to the study in Saudi Arabia, where, it was identified that the knowledge of mothers 334 improves with education [19]. The difference might have been due to the differences in the study 335 population and setting. Also, mothers/caregivers who were unemployed were more likely to have 336 good knowledge in relation to self-employed mothers. This may be due to the unlimited time and 337 undivided attention possessed by this category (unemployed) to seek knowledge. Higher monthly 338 income was associated with a significant increase in the level of knowledge when compared to those 339 who earned less than M500. This was supported by a study in Ghana, where the odds of diarrhoea 340 incidence were significantly higher among the rural poorer respondents [20]. Furthermore, monthly 341 income was found to be a predictor in the level of attitude in the prevention and management of 342 diarrhoea. In the urban setting, mothers with a monthly income of between M500 - M1399 were more 343 likely to have a good attitude as compared with those who earned less than M500.

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### 347 Challenges and Limitations

A cross-sectional nature of this study, subjects it to biases when determining the associations of independent variables to dependent ones. However, measures to reduce bias in this study were employed, such as in the use of a standardised questionnaire and in the training of the research assistants, however, the representativeness of this study sample to the population was not guaranteed. The sample only represented participants in the two centres and not the entire district, therefore basing the study on a larger sample size could have generated more accurate or stronger results.

355

### 356 4. CONCLUSION AND RECOMMENDATIONS

### 357 **4.1. Conclusion**

358 It was established that, there were differences in the knowledge, attitudes and practices in the two 359 settings. The findings of the study further revealed that various socio-demographic characteristics in 360 both the urban and rural settings influenced, particularly, maternal knowledge on prevention and 361 management of child diarrhoea. Monthly income was solely associated with maternal attitudes in the 362 urban setting. In addition, there were no observed significant influences of socio-demographic 363 characteristics on maternal practices in both settings.

### 364 **4.2. Recommendations**

365 Based on the findings of the study, it is recommended that: There is the need to strengthen health education messages on childhood diarrhoea. This ought to be in a form of a repeated structured 366 367 educational programme to educate mothers/caregivers, basically on the causes, signs and severity of 368 diarrhoea in settings such as schools, hospitals/clinics, and other work areas. Though mothers/caregivers in the urban setting were more familiar with methods of prevention of diarrhoea in 369 370 children under the age of five, but need to be re-iterated in both settings. For better coverage of health 371 messages, these should be disseminated through clinic visitations by health officials, media platforms 372 and community campaigns. The use of ORS and/or homemade SSS as the first line of management 373 of diarrhoea, should be emphasised in both settings, as uncomplicated diarrhoea can be successfully 374 managed at home. In addition, the importance of ORS/homemade SSS as a lifesaving intervention 375 and the correct mixing of the solution should be taught.

Further research using a more rigorous study designs that involve the combination of quantitative and qualitative (in-depth) research methodologies, and a larger sample size may provide stronger evidence in addressing the research question.

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## 382 COMPETING INTERESTS

- 383384 The authors declare that they have no competing interests.
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### 386

## 387 CONSENT AND ETHICAL APPROVAL

This was according to the Biomedical Research Ethics Committee (BREC) of UKZN and the Ethics Committee of the Ministry of Health, Lesotho. The participant consent and ethical approval were collected and preserved by the authors.

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## 488 **DEFINITION FOR THE TERM**

489 Maternal: Mother of the under-five child, and can be biology or adopted.

490 Caregiver: Woman that assumes the responsibility of a child in the absence of the biology or adopted 491 mother, which includes; family member or nanny.

Knowledge: The awareness and understanding on the prevention and management of diarrhoea ofthe under-five child.

494 Attitude: The condition of readiness for the prevention and management of diarrhoea of under-five495 child

496 Practices: The action of performing the process involved in the prevention and management of497 diarrhoea of under-five child.

498 Diarrhoea: The passage of three or more loose or watery stools per day, or of more frequency than 499 normal for the individual.

500 Child: Children aged five years and below.

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504	ACR	ONYMS AND ABBRE	VIATIONS	
505	AIDS	Acqui	red Immune Deficiency Syndrome	
506	CCCI	DComb	ating Childhood Communicable Diseases	
507	DALY	′sDisabi	lity Adjusted Life Years	
508	KAP.	Know	edge, Attitude and Practice	
509	LDHS	SLesot	ho Demographic and Health Survey	
510	MoH.	Minist	rry of Health	
511	ORS	Oral F	Rehydration Salt Solution	
512	ORT.	Oral F	Rehydration Therapy	
513	SSS.	Suga	r and Salt Solution	
514	UNIC	EFUnited	Nations Children's Fund	
515	WHO	World	Health Organisation	
516	SPSS	S Statis	tical Package for the Social Package	
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519 520	LIST	OF APPENDICES		
521	1. DA	TA COLLECTION TOOL	(QUESTIONNAIRE)	
522	2. INI	FORMED CONSENT AN	D PARTICIPANTS' DECLARATION	
523	3. LE	SOTHO MINISTRY OF H	EALTH APPROVAL	
524	4. BR	EC (BIOMEDICAL RESE	ARCH ETHICS COMMITTEE) APPROVAL	
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532 533	APPE Part	ENDIX ONE: DATA COL 1: Demographic Informa	LECTION TOOL ation	
534	1. Ag	e of mother:		
[	No	Questions and filters	Coding categories	Skip to

Married.....1

2

Marital status

		Not married2	
		Divorced3	
3	How many children do	One1	
	you have?	Two2	
		Three3	
		Others please specify4	
4	Age of child / age of		
	one		
5	What is your highest	Primary1	
	level of education?	Secondary2	
		Tertiary3	
		Non-formal4	
		Other, please specify5	
6	Employment status	Self-employed1	
		Employed2	
		Unemployed3	
		Pensioner4	
		Receiving disability grant4	
		Other, please specify5	
7	Monthly Income?	Less than M5001	
		Between M500-M13992 Between M1400-M50003	
		More than R50004	
		I don't want to say5	

## 536 Part 2: Knowledge on diarrhoea

No	Questions and filters	Coding categories	Skip to
8	What do you think are the causes of diarrhoea? ( you may choose more than one answer)	Unclean water	

		Others, please specify9
9	Does breastfeeding increase the risk of child diarrhoea?	Yes1 No2 Don't know3
10	Can diarrhoea be caused by prolonged breast feeding that lasts up to two years?	Yes1 No2 Don't know3
11	Infant formula feeding can pose a higher risk of diarrhoea compared to breast feeding?	Yes1 No2 Don't know3
12	Can diarrhoea be life- threatening?	Yes1 No2 Don't know3
13	Where/from whom do you/ did you receive information on prevention and management of child diarrhoea?	Never
14	How do you know if your child has diarrhoea?	Passage of normal stool at least twice a day1 Passage of three or more loose or watery stools per day2 Others, please specify3 Don't know4

## 538 Part 3: Attitudes and feeding practices towards diarrhoea and its management

No	Questions and filters	Coding categories	Skip to
15	Do you believe in exclusive breast feeding? (for nursing mothers)	Yes1 No2 Don't know3	
16	How often should breastfed babies be best fed?	On demand1 1 - 2 times daily2 3 times daily3 Don't know4	

17	In the presence of child diarrhoea, what should a breastfeeding mother do?	Do not breast feed	
18	What is the most beneficial duration of breastfeeding?	Less than 6 months1 6 – 12 months2 Greater than 12 months3	
19	What complimentary foods do you give your child when introduced to solids?	Rice and sauce	
20	Do you think that more liquids should be given to a child with diarrhoea?	Yes1 No2 Don't know	

## 541 Part 4: Practice towards diarrhoea disease prevention

No	Questions and filters	Coding categories	Skip to
21	Do you believe that diarrhoea is preventable? (if no, please go to question 26)	Yes1 No2 Don't know3	
22	If yes, how do you prevent it? (you may choose more than one answer)	Washing your hands with soap and water after getting contact       with       a       child's       faecal faecal         matter1       Safe and hygienic preparation of food2       Safe and hygienic disposal of faecal and contaminated materials3         Others, please specify4	
23	What sanitation facilities do you use at	Pit latrine1	

	home?	Flush toilet2			
		Openly defecate in the compound premises			
		Bed pan/ Potty4			
24	What is your source of	River water1			
	drinking water?	Open well2			
		Public tap3			
		Private tap4			
		Borehole5			
		Other6			
Part 5: Practices towards diarrhoea disease management					

#### Part 5: Practices towards diarrhoea disease management

Part 5: Practices towards diarrhoea disease management				
No	Questions and filters	Coding categories	Skip to	
25	What would you do when your child has diarrhoea?	Do nothing		
26	Do you use homemade oral rehydration solution?	Yes1 No2		
27	If yes, how do you prepare it?	1 tea spoonful of salt, 8 tea spoonful of sugar in one litre of water		
28	Would you give ORS at every watery stool?	Yes1 No2 Don't know3		
29	Do you consider diarrhoea to be severe when the stool is bloody?	Yes1 No2 Don't know		
30	Do you consider diarrhoea to be severe when the child has sunken fontanel?	Yes1 No2 Don't know3		

31	Do you consider diarrhoea to be severe when child cries but with no tears?	Yes1 No2	
32	What action would you take if your child's diarrhoea gets worse?	Try home remedies	

# APPENDIX TWO: INFORMED CONSENT AND PARTICIPANTS DECLARATION INFORMED CONSENT

546 Date:

547 Good day mothers

548 My names is: Adeleke Adekunle Isaac, and I am a student currently enrolled for a Master's degree in 549 Public Health, Howard College Campus, at the University of KwaZulu-Natal (UKZN), Durban in South 550 Africa. The reason I came here is to ask some questions related to child Health, in order to 551 understand your level of knowledge, your attitudes and practices in the management of diarrhoea in 552 under five year old children. This research process forms part of my Master's thesis entitled:

"Maternal knowledge, attitudes and practices towards prevention and management of child diarrhoea
 in urban and rural Maseru, Lesotho, 2016"

The study aimed to understand better the knowledge, attitudes and practices of mothers in the management of diarrhoea in relation to where they live. This will help in understanding the different ways that mothers prevent and manage diarrhoea in children less than five years old in the urban and rural settings.

The research will require about 500 participants, with a questionnaire containing about 36 questions required to be completed by the participants with the assistance of researchers. Participants will be required to answer the questionnaire provided to them after they have fully agreed to do so voluntarily.

The result of the research will help the participants and the government of Lesotho and developing countries at large, in knowing the approach to apply in providing basic information and effective health education components, to strengthen health education programmes for healthcare facilities in the management of diarrhoea. Each participant will be allocated a number, therefore the names will not be revealed.

568 There is no material or financial benefits attached to participating in this research study, and your 569 participation is entirely voluntary. Please note that any participant can withdraw from this study at any 570 time, there will not be any loss of services she is entitled to.

571 The information obtained from the questionnaire will be treated in a confidential manner, and will be 572 safely stored in a locker at the School of Public Health, University of KwaZulu-Natal.

573 Should you need further clarity or have any questions regarding this research study, please contact 574 me or my research supervisor.

**Research Supervisor** 

Dr Tsholofelo Mhlaba

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576 Researcher:

577 Adeleke Adekunle

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579 Your participation is much appreciated, thank you.

580 BREC ETHICAL APPROVAL NUMBER (BE588/16)

581 582 583 584 585 586 586 587 588	BIOMEDICAL RESEARCH ETHICS ADMINISTRATION Research Office, Westville Campus Govan Mbeki Building University of KwaZulu-Natal Private Bag X 54001, Durban, 4000 KwaZulu-Natal, SOUTH AFRICA Tel: 27 31 2602486 - Fax: 27 31 2604609
589	
590	DECLARATION
591 592 593 594	Ihereby declare that I am fully aware of the contents of this Informed Consent Form and the nature of this research project. I fully agree to participate in this research project as a volunteer, and, therefore,I have the right to refuse to answer any questions as per my discretion.
595 596 597	I also have the right to withdraw from this research study at any point, should I wish to do so, and my actions will not disadvantage me in any way. I will not receive any payment for participating in the research.
598	
599	Signature of Participant
600	Witness
601	Date
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- 624 LESOTHO MINISTRY OF HEALTH APPROVAL



LESOTHO

### REF: ID113-2016

Date: 01 November 2016

#### То

Adeleke Adekunle Isaac Student number 2150 73608 Masters of PH candidate University of KWAZULU-NATAL, RSA

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#### Category of Review:

- [ ] Initial Review [ ] Continuing Annual Review
- [x] Amendment/Modification
- [ ] Reactivation

[ ] Serious Adverse Event [ ] Other \_\_\_\_\_

Dear Adeleke,

### RE: Maternal knowledge, attitudes and practices towards prevention and management in child diarrhea in urban and rural Maseru, Lesotho, 2016

This is to inform you that on 20 October 2016 the Ministry of Health Research and Ethics Committee reviewed and **APPROVED** the modifications of above named protocol and hereby authorizes you to continue the study according to the activities and population specified in the protocol. Departure from the approved protocol will constitute a breach of this permission.

This approval includes review of the following attachments: [x] Protocol dated 08 September 2016 [x] English & Sesotho consent forms [x] Data collection forms in Sesotho [x] Data collection forms in English [ ] Participant materials [insert types, versions, dates] [x] Other materials: The letter of recommendation from KWAZULU-NATAL University This approval is VALID until 24 October 2017.

Please note that an annual report and request for renewal, if applicable, must be submitted at least 6 weeks before the expiry date.

All serious adverse events associated with this study must be reported promptly to the MOH Research and Ethics Committee. Any modifications to the approved protocol or consent forms must be submitted to the committee prior to implementation of any changes.

We look forward to receiving your progress reports and a final report at the end of the study. If you have any questions, please contact the Research and Ethics Committee at <u>rcumoh@gmail.com</u> (or) 22226317.

Sincerely,

Hadun Dr. Nyane Letsie Director General Health Services

MINISTRY O Mrs. V. T. Lenan Co-chairperson Ne IRB 201 DIRI BO) PO

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### 629 BREC (BIOMEDICAL RESEARCH ETHICS COMMITTEE) APPROVAL



26 January 2017

Dr Al Adeleke (215073608) Discipline of Public Health School of Nursing and Public Health Medicine Health Sciences docleke@gmail.com

Protocol: Maternal knowledge, attitudes and practices towards prevention and management of child diarrhea in urban and rural Maseru, Lesotho, 2016. Degree: MPH BREC reference number: BE588/16

### EXPEDITED APPLICATION

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application received on 21 October 2016.

The study was provisionally approved pending appropriate responses to queries raised. Your response received on 18 January 2017 to BREC letter dated 14 December 2016 have been noted by a subcommittee of the Biomedical Research Ethics Committee. The conditions have now been met and the study is given full ethics approval and may begin as from 26 January 2017.

This approval is valid for one year from 26 January 2017. To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at <a href="http://research.ukzn.ac.za/Research-Ethics.aspx">http://research.ukzn.ac.za/Research-Ethics.aspx</a>.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be **RATIFIED** by a full Committee at its next meeting taking place on 14 February 2017.

We wish you well with this study. We would appreciate receiving copies of all publications arising out of this study.

Yours sincerely

Professor Joyce Tsoka-Gwegweni Chair: Biomedical Research Ethics Committee cc supervisor: <u>mhlaba@ukzn.ac.za</u> cc postgraduate administrator: <u>anumucanid@ukzn.ac.za</u>

> Biomedical Research Ethics Committee Professor J Tsoka-Gwegweni (Chair) Westville Campus, Govan Mbeki Building Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 2495 Facsimile: +27 (0) 31 260 4809 Email: brec@uken.ap.zp

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