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HAC 5.2.5. Global economy
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THE INFLUENCE OF CAREGIVERS' FORMAL AND NUTRITION LITERACY ON FEEDING PRACTISES AMONG CHILDREN AGED BELOW FIVE BORN TO ADOLESCENT GIRLS, IN NDHIWA, HOMA BAY COUNTY, KENYA

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Abstract. Child deaths are a serious health challenge in Kenya. Despite government efforts to curb this menace, deaths among children aged 5 and below are still in elevation. Previous studies associated these deaths to poor nutrition and preventable diseases while giving little focus on the role of caregivers in improving the nutritional status of the children as a way of reducing child mortality. The main objective of the study is to analyze the influence of caregivers' formal and nutrition literacy on feeding practices of children born to adolescent girls in Ndhiwa, Homa Bay County. In a study population of 1470 caregivers and 497 Community Health Volunteers, both Quantitative and Qualitative data was collected. Using Yamane's formula, applicable for a finite population, 204 caregivers were systematically sampled. Descriptive statistics was utilized in analyzing quantitative data. Regression analysis and Chi square tests were used to identify the relationship between independent and dependent variables. Statistical significance was established using a p-value of <0.05. For Caregivers' formal and nutrition literacy versus feeding practices by use of Chi-square test of independence, it was established that p=0.000 which was less than α=0.05 at 95% confidence interval. This implies existence of a significant relationship between caregivers' formal and nutrition literacy and feeding practices of the under-fives. Formal and nutrition literacy play a big role in enhancing the nutritional status of under-fives. Both formal and nutrition literacy equips caregivers with better knowledge on feeding practices for the under-fives which is essential for healthy development.

Keywords: caregivers, formal & nutrition literacy, feeding practices, adolescent girls, traditional birth attendants, exclusive breastfeeding, community health volunteers.

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ВАК 5.2.5. Мировая экономика
ВАК 5.5.3. Государственное управление и отраслевые политики

ВЛИЯНИЕ ФОРМАЛЬНОЙ ГРАМОТНОСТИ ВОСПИТАТЕЛЕЙ И ГРАМОТНОСТИ В ОБЛАСТИ ПИТАНИЯ НА ПРАКТИКУ КОРМЛЕНИЯ ДЕТЕЙ В ВОЗРАСТЕ ДО ПЯТИ ЛЕТ, РОЖДЕННЫХ ДЕВОЧКАМИ-ПОДРОСТКАМИ, В НДХИВЕ, ОКРУГ ХОМА-БЕЙ, КЕНИЯ

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Аннотация. Детская смертность является серьезной проблемой здравоохранения в Кении. Несмотря на усилия правительства по борьбе с этой угрозой, смертность среди детей в возрасте до 5 лет по-прежнему растет. Предыдущие исследования связывали эти случаи смерти с плохим питанием и болезнями, которые можно предотвратить, но при этом уделяли мало внимания роли лиц, осуществляющих уход за детьми, в улучшении состояния питания детей как способа снижения детской смертности. Основная цель исследования - проанализировать влияние формальной грамотности воспитателей и грамотности в области питания на практику кормления детей, рожденных девочками-подростками в Ндхиве, округ Хома-Бей. В исследовании, включавшем 1470 лиц, осуществляющих уход, и 497 волонтеров-медиков из местных сообществ, были собраны как количественные, так и качественные данные. Используя формулу Яманэ, применимую для ограниченной популяции, были систематически отобраны 204 лица, осуществляющих уход. При анализе количественных данных использовалась описательная статистика. Для выявления взаимосвязи между независимыми и зависимыми переменными были использованы регрессионный анализ и критерий Хи-квадрат. Статистическая значимость была установлена с использованием значения p <0,05. Что касается формальной грамотности лиц, осуществляющих уход, и грамотности в области питания в сравнении с практикой кормления, то с помощью критерия независимости Хи-квадрат было установлено, что p=0,000, что было меньше α=0,05 при 95% доверительном интервале. Это подразумевает наличие существенной взаимосвязи между формальной грамотностью лиц, осуществляющих уход, и грамотностью в области питания, и практикой кормления детей в возрасте до пяти лет. Формальная грамотность и грамотность в области питания играют большую роль в улучшении состояния питания детей в возрасте до пяти лет. Как формальная, так и диетологическая грамотность дает лицам, осуществляющим уход, более глубокие знания о методах питания детей в возрасте до пяти лет, что необходимо для здорового развития.

Ключевые слова: воспитатели, формальная грамотность и грамотность в области питания, практика кормления, девочки-подростки, традиционные акушерки, исключительно грудное вскармливание, волонтеры общественного здравоохранения.

Информация о финансировании: данное исследование выполнено без внешнего финансирования.

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Для цитирования: Муземби Т.Ю. Влияние формальной грамотности воспитателей и грамотности в области питания на практику кормления детей в возрасте до пяти лет, рожденных девочками-подростками, в Ндхиве, округ Хома-бей, Кения. Государственное управление и право. 2025. № 2(06). С. 54-XX.

INTRODUCTION

Malnutrition cases amongst children aged five and below is a significant public health concern around the globe. It has been attributed to most of the deaths, with approximately 45% of all mortalities in children aged five years and below. Across the globe, the pervasiveness of various types of malnourishments including the state of stuntedness, wasting and underweight in under-five children were 24.7%, 7.8% and 15.1% correspondingly in the year 2020. Even though under-five malnourishment is still common across the globe, it is more dominant in third World nations. For instance, the level of prolonged malnourishment was around 39.9% in the African region, while the rates of underweight cases were approximately 26.6% in the South-East Asia region [1, p.4].

Asia had the largest number of children aged 5 and below who are either malnourished or wasted with a percentage of about 21.9% and 11.2% correspondingly in the year 2022. Nevertheless, due to the population density in this part of the World, Asia also has the highest number of under-fives who are stunted, wasted or malnourished. However, these cases of malnutrition are prevalent in South-Central Asia. The problem of malnourishment in this part alone is capable of barring the world from attaining Sustainable Development Goal number 3 and possibly the modern global 2025 targets for nutrition [2, p.2]. Another study carried out to uncover the factors associated with malnutrition in South and Central Asia established that malnutrition was associated with poor dietary intake, low birthweight and maternal nutrition status, poor breastfeeding habits, inadequate complementary feeding habits, unhygienic surroundings and lack of accessibility to health care, poverty and food insecurity as well as gender inequality and women's status. The study further established that there is need to increase the level of education of the parent, improve the nutrition status of the mother and increase amenities which provide antenatal care package so as to attain improved nutrition standards among children aged five and below [3, p.6; 4, p.7]. These studies clearly outlined some of the major factors leading to malnutrition and have also recognized the presence of an association between parents' education and the nutrition status of children. However, these studies did not show how caregivers' formal and nutrition literacy levels influence feeding practices among children aged five and below as one of the ways of curbing malnutrition hence improving their health.

The African region has one of the highest prevalence of undernutrition globally whereby it is associated with around 39.4% of stunting, 24.9% of the malnourished and 10.3% of the emaciated under-fives. Sub Saharan Africa accounts for a third of all malnourished children internationally, emphasizing that malnourishment is still a significant health challenge for children aged five and below in the continent, thus making it necessary for urgent intervention [5, p.69; 6, p.6]. Studies from this region show that breastfeeding highly contributes to child nutrition and growth. Newborn physical growth throughout the initial post-partum stage is highly impacted upon by newborn feeding practices [7, p.11]. A number of strategies have therefore been introduced to enhance suitable newborn feeding such as the ideal period of exclusive breastfeeding (EBF). The guidelines of the World Health Organization advocate for exclusive breastfeeding during the initial six months of a new born [8, p.2]. This directive is founded on proof of the necessity of proper nourishment in the first months after delivery and its importance in attaining proper healthiness. The advantages of the same comprise curbing of illnesses and contamination in young age and enhanced mental and physical skills growth. Breastfeeding habits are affected by number of variables such as traditional values, level of awareness of the mother and past knowledge [9, p.7; 10, p.5]. The above studies highlighted the significance of exclusive breastfeeding (EBF) to the development of under-fives through boosting immunity. Though informative, the studies did not clearly explain how caregivers' formal and nutrition literacy levels may influence their breastfeeding practices as a way of enhancing good health among

children aged 5 and below.

Tanzania has approximately 42% of minors who are stunted [11, p.7]. When a child is stunted, they experience delayed physical and psychological growth and increased illnesses and deaths, minimal bodily power as well as minimal economic output in adulthood. Nutritional difficulties in children are majorly due to unsuitable feeding habits in Tanzania [12, p.6; 13, p.12]. Most importantly, breastfeeding is advantageous. Nevertheless, EBF where the newborn exclusively feeds on breast milk only without supplementary food stuffs or beverages is proven to produce advantages for mutually mother and infant [14, p.10]. Though breastfeeding is a routine for a number of mothers around the country, not much is clear concerning the genuine habits of newborn feeding, their impact on newborn nutritious status and the indicators of breastfeeding [15, p.6]. These studies once more highlighted the importance of exclusively breastfeeding and good practice of complementary feeding to the development of children aged five and below. However, they did not lay emphasis on the level of awareness among caregivers on exclusive breastfeeding and versatile diet of children and how their formal and nutrition literacy levels may influence feeding practices among children under this age bracket who are born to adolescent girls.

In Kenya, cases of children who are stunted are approximately over 35%, whereas those malnourished are approximately 16% [16, p.8]. Together with elevated child death cases, these predicaments have continuously weakened the administration's determinations to deliver excellent healthcare and to curb the high cases of deaths and malnourishment [17, p.6]. As a way of curbing child mortality, the Government adopted various policies including the National Maternal, Infant and Young Child Nutrition Policy (2013) which aimed at protecting, facilitating and encouraging ideal maternal, infant and young child nutrition and establish a setting which seeks to foster nutrition wellness, upholding the rights of children to be sufficiently nourished. Regardless of this hard work, there is minimal improvement in solving the key factors of childhood malnourishment, illnesses and deaths hence persistently decelerating the achievement of the objectives. Under-five deaths remain high, at the ratio of 41 cases for every 1,000 live deliveries currently [18, p.8]. Additionally, a study done in Siaya County, Kenya on a small sample (n=175) carried out on children aged five years and below revealed that most children who were stunted and emaciated in Siaya were mainly below the age of two. This was majorly associated with a premature introduction to complementary foods. It was also established that breathing illnesses were common amongst this group as well as other communicable diseases [19, p.36; 20, p. 15]. These studies highlighted some adverse effects of malnutrition including stunting and being underweight. However, they did not show how formal and nutrition literacy levels of caregivers' influence feeding practices among children under five years as a way of curbing malnutrition. The current study focused on this particular concern.

PURPOSE OF THE STUDY

The current study looked at the knowledge of caregivers on feeding practices of under-fives through its primary objective, which was to analyze the influence of caregivers' formal and nutrition literacy levels on feeding practices of children born to adolescent girls in Ndhiwa, Homa Bay County. Outcomes of this study guided by this objective on feeding practices of the caregivers can help stakeholders in the maternal and child health sector to understand the extent to which caregivers' literacy levels influence feeding practices among children aged five and below as one way of curbing malnutrition, which is a contributing factor to deaths among children in this age bracket.

Further, the findings of the current study can be useful to policy makers. By seeking a deeper understanding of the place of formal and nutrition literacy of adolescent mothers and alternate caregivers on the wellbeing of infants, it provides feedback useful in repackaging of infant mortality prevention strategies. The study also contributes to academic knowledge and adds to the literature in existence on child health. Additionally, the study highlights all emerging concerns that

are significant for future research.

RESEARCH METHODS

The study was anchored on descriptive design and correlational design allowing for a mixed method approach combining qualitative and quantitative data. It was guided by Ecological Systems Theory which suggests that the microsystem: the closest surrounding a child lives in, has a great impact to their overall growth. In a study population of 1470 caregivers and 497 Community Health Volunteers various data collection techniques were used in collecting both Quantitative and Qualitative data. Using Yamane's formula, applicable for a finite population, 204 caregivers were systematically sampled for responses. The researcher used the principle of maximum variation to conduct interviews with as many Community Health Volunteers as possible until they reached a point of saturation. Primary information was acquired through Questionnaires, Interviews, Focus Group Discussions and Observation whereas Secondary information was obtained from government documents, journals and books.

Ethical statement: Permission to carry out the research was acquired from the National Commission for Science, Technology and Innovation (NACOSTI). The participants were informed that their participation in the research was voluntary and that they could withdraw at any time. The researcher also ensured that for the adolescent mothers, assent was sought from their guardians or parents before their participation. The researcher explained to the participants that there would be no risk encountered during the study and that confidentiality and privacy would be upheld throughout the study by keeping participant information secure.

Data analysis: Descriptive statistics was utilized in analyzing quantitative data from questionnaires. Regression analysis and Chi square tests were used to identify the relationship between independent and dependent variables. Statistical significance was established using a p-value of <0.05. The study used frequency tables, percentages and charts to summarise data. Qualitative data collected through interviews and focus group discussions was analyzed through coding, where themes were generated to capture the original content of the data.

RESEARCH RESULTS

Background information/ Household demographic features

The study sought to first gather background data of the respondents which included Age and Marital status of the caregivers. Data gathered on the age of the respondents enabled the researcher to find out who the primary caregivers of children under five years were as well as the alternate caregivers.

Age of the Respondents

Data gathered from caregivers through administering of questionnaires clearly outlined the age of every caregiver. Table 1 below shows age distribution where most (70.1%) of the caregivers were aged below 20 years, meaning that the primary caregivers were the adolescent mothers while the remaining 29.9% were the alternate caregivers aged 20 and above 51 years.

Table 1. Age of the respondents
Таблица 1. Возраст респондентов

Valid	Frequency	Percent	Valid Percent
Below 20 years	143	70.1	70.1
20 to 35 years	5	2.5	2.5
36 to 45 years	4	2.0	2.0
46 to 50 years	9	4.4	4.4
Above 51 years	43	21.1	21.1
Total	204	100.0	100.0

Source: Author's field data (2024)

The study further sought to establish who the alternate caregivers were in the absence of the adolescent mothers as a result of attending school or engaging in other activities. The table 2 below shows the distribution where the main alternate caregivers were grandmothers as well as elder siblings to the adolescent mothers.

Table 2. Who cares for the child in mother's absence
Таблица 2. Кто ухаживает за ребенком в отсутствие матери

Valid	Frequency	Percent	Valid Percent
Sibling	64	31.4	31.4
Grandmother	115	56.4	56.4
Friends	25	12.3	12.3
Total	204	100.0	100.0

Source: Author's field data (2024)

During focus group discussions with the caregivers, it emerged that in most cases the under-fives were left under the care of their grandmothers and this was attributed to the existence of other competing factors including education for some of the adolescent mothers that had returned to school and socioeconomic activities including farming.

During a Focus Group Discussion, a participant who was a parent to a teenage mother explained:

I have to take care of my grandchild in the absence of my daughter who resumed her studies a year after delivering the child. I also look after the child when my daughter is helping me in the shamba or with household chores.

Marital status of caregivers

The researcher further sought to establish the marital status of every caregiver or individuals with the responsibility of caring for children below the age of five born to adolescent girls. This included both adolescent mothers and the alternate caregivers (table 3). By use of split file tool on SPSS, data on age was split into different groups, defined and analysis done on the data in all the groups. This segregation helped in understanding the marital status of each and every caregiver.

Table 3. Marital status of caregivers
Таблица 3. Семейное положение лиц, осуществляющих уход

Age of the respondent			Frequency	Percent	Valid Percent
Below 20 years	Valid	Single	129	90.2	90.2
		Married	14	9.8	9.8
		Total	143	100.0	100.0
20 to 35 years	Valid	Widowed	5	100.0	100.0
36 to 45 years	Valid	Divorced	1	25.0	25.0
		Widowed	3	75.0	75.0
		Total	4	100.0	100.0
46 to 50 years	Valid	Married	9	100.0	100.0
Above 51 years	Valid	Married	11	25.6	25.6
		Divorced	5	11.6	11.6
		Widowed	20	46.5	46.5
		Separated	7	16.3	16.3
		Total	43	100.0	100.0

Source: Author's field data (2024)

Information gathered showed that all the Single mothers (129 cases) were adolescents who were the biological mothers with only 14 cases of married adolescents. The remaining alternate caregivers including grandmothers and friends were either married, divorced, widowed or separated. During focus group discussions with the adolescent mothers, it emerged that teenage pregnancy in some cases led to early marriages. Most of the adolescent mothers that were married cited early pregnancy as the main reason for getting married, particularly due to pressure from their parents.

The current study established that in Ndhiwa sub-County, stigma over adolescent pregnancy outside of marriage remains so strong that adolescents are often sent away for marriage or to live with their relatives until after delivery of the child. In some instances, the adolescents do not complete their education, instead they get married or completely relocate with their children to live with their relatives. The current research therefore sought to establish how marriage relates to literacy levels and the implications of the same on feeding habits of caregivers. The current research established that early marriages contributed to school dropout among adolescent mothers. This implied lack of formal literacy by this particular group. Low levels of formal literacy therefore led to lack of knowledge and exposure on issues of nutritional requirements for their children which jeopardizes the feeding practices.

Caregivers' formal literacy

This refers to the ability to use language to read, write, listen and speak. When a caregiver is literate, they can read, comprehend and use materials in print and written form presented before them in both formal and informal settings. Literacy levels in this study included formal and nutrition literacy and the researcher sought to examine how these forms of literacy influence feeding practices. Formal literacy refers to structured form of learning gained through attending basic high school and tertiary education. To establish the caregivers' formal literacy, the researcher looked at the level of education, of the caregivers in general and this included the adolescent mothers and the alternate caregivers. Using split file tool on SPSS, data on age was split into different groups so as to analyze the level of education of every caregiver. It was established that 61 adolescents had incomplete secondary education while 82 adolescents had incomplete primary education. Data gathered also showed that 39 of grandmothers who were the main alternate caregivers had no formal education with only 4 grandmothers having incomplete primary education. Table 4 below shows the level of education of the caregivers.

Table 4. Highest level of education
Таблица 4. Самый высокий уровень образования

Age of the respondent			Frequency	Percent	Valid Percent
Below 20 years	Valid	Secondary not completed	61	42.7	42.7
		Primary school	82	57.3	57.3
		Total	143	100.0	100.0
20 to 35 years	Valid	Primary school	5	100.0	100.0
36 to 45 years	Valid	No formal education	4	100.0	100.0
46 to 50 years	Valid	Primary school	4	44.4	44.4
		No formal education	5	55.6	55.6
		Total	9	100.0	100.0
Above 51 years	Valid	Primary school	4	9.3	9.3
		No formal education	39	90.7	90.7
		Total	43	100.0	100.0

Source: Author's field data (2024)

Follow up interviews with the Community Health Volunteers (CHVs) were conducted to establish the cause of adolescent mothers not completing their education. It emerged that most of the adolescents did not go back to school as stipulated by the Kenya School Health Policy (2018) which advocates for adolescent girls who become pregnant to be permitted to continue with their education and also be permitted to return to school after child delivery. The policy provides for the adolescent mothers to be permitted after giving birth, to go back to school or be readmitted in another school if they feel stigmatized. The CHVs cited stigmatization as well as financial constraints as a result of pregnancy such as childcare expenses to be the key barriers to rejoin school by the adolescent mothers. During an interview, a CHV said:

Several schools see it fit to expel expectant girls since they are viewed as negative influence to the rest of the pupils in the school. The lack of clear guideline or any official communication on the manner in which the policy should be implemented makes it weak and unreliable. As a matter of fact, many caregivers do not know whether the policy exists.

In Homa Bay County, only 54% of school going girls complete their primary education. Additionally, around 48% of girls in Homa bay County are school drop outs and approximately 40% of girls between 15-19 years already have a child (Undie et al., 2015). These high cases of school dropout amongst the adolescent girls denies them a chance to acquire formal literacy which may influence feeding practices amongst children under their care. Additionally, dropping out of school by adolescent mothers has an implication on objectives of the Kenya School Health Policy (2018) which advocates for continuation of education by adolescent girls during pregnancy and permission to re-join school after delivery (table 5).

Table 5. Regression analysis on education level and receiving education on good child feeding practices

Таблица 5. Регрессионный анализ уровня образования и получения информации о надлежащих методах кормления детей

Correlations			
		Highest level of education	Ever received education on good child feeding practices
Highest level of education	Pearson Correlation	1	.332**
	Sig. (2-tailed)		.000
	N	204	204
Ever received education on good child feeding practices	Pearson Correlation	.332**	1
	Sig. (2-tailed)	.000	
	N	204	204
**. Correlation is significant at the 0.01 level (2-tailed).			

The table above shows existence of a significant relationship between level of education and awareness on good child feeding practices. This implies that formal literacy positively impacts knowledge on good child feeding practices. As such, literate caregivers ensure good feeding practices for their children since they are able to comprehend information on good feeding practices disseminated from various platforms as well as shifting negative attitude towards some diets which are beneficial to children.

Caregivers' nutrition literacy

Nutrition literacy refers to education gained from either health facilities, mass media or person to person on the diet that contributes to healthy living of children aged five and below (WHO, 2010). Nutrition literacy

was categorized by differentiating the caregivers that had received any education on nutrition from those that had not received such education. The researcher further enquired if the caregivers were aware of the 3 categories of food including proteins, carbohydrates and vitamins. The caregivers who were aware and could categorize the listed foods appropriately into either proteins, carbohydrates or vitamins were classified as being nutritionally literate whereas the caregivers that were not aware of the 3 categories of food and could not categorize the listed foods properly were classified as those of low nutritional literacy level.

To establish the caregivers' nutrition literacy, the researcher looked at the caregivers' knowledge on good child feeding practices and this included the adolescent mothers and the alternate caregivers. Data on feeding practices was gathered using questionnaires that were administered to every caregiver including the adolescents and the alternate caregivers.

Responses from the questionnaires were analysed and by use of split file tool on SPSS, data on age was split into different groups in order to establish the level of knowledge on good child feeding practices of each and every caregiver (table 6).

Table 6. Ever received education on good child feeding practices
Таблица 6. Вы когда-либо получали образование о надлежащих методах кормления детей

Age of the respondent			Frequency	Percent	Valid Percent	Cumulative Percent
Below 20 years	Valid	Yes	54	37.8	37.8	37.8
		No	89	62.2	62.2	100.0
		Total	143	100.0	100.0	
20 to 35 years	Valid	Yes	5	100.0	100.0	100.0
36 to 45 years	Valid	No	4	100.0	100.0	100.0
46 to 50 years	Valid	Yes	4	44.4	44.4	44.4
		No	5	55.6	55.6	100.0
		Total	9	100.0	100.0	
Above 51 years	Valid	Yes	8	18.6	18.6	18.6
		No	35	81.4	81.4	100.0
		Total	43	100.0	100.0	

Source: Author's field data (2024)

Table 6 above revealed that more than half of the adolescent mothers (62%) had not received education on good child feeding practices. This implies low nutrition literacy among adolescent mothers who were the main caregivers which leads to poor child feeding practises due to lack of awareness. It was also established that 18.6% of the grandmothers who were the main alternate caregivers had received education on good child feeding practices while 81.4% had not received such education. Knowledge on good child feeding practices among grandmothers could be partly associated with the fact that this particular group has past experience on feeding practices of children aged five and below.

In an effort to further establish nutrition literacy levels of caregivers, the researcher further enquired whether they were aware of the three food groups. Out of the sampled caregivers, 28.4% were aware of the

three food groups and could name the different types whereas 71.6% were not aware of proteins, carbohydrates and vitamins. Majority (71.6%) of the caregivers were not aware of the three food groups including proteins, carbohydrates and vitamins. This implies low nutrition literacy among the closest individuals in the environment in which under-fives live in and who are responsible for their healthy development as emphasized in Bronfenbrenner's Ecological theory. Lack of awareness by this group results to poor decision making when it comes to feeding practices of children below the age of five through failure to provide the recommended food groups to children. A study by World Health Organization [1, p.6] showed that children ought to be provided with four different types of foods on daily basis for their healthy development regardless of whether they are breastfeeding or not. Failure to feed on these foods due to low nutrition literacy may put children at the risk of malnutrition which has been identified as a major cause of death amongst under-fives. Similarly, low nutrition literacy resulting in poor feeding practices by caregivers jeopardizes the achievement of the policy objectives in the National Maternal, Infant and Young Child Nutrition Policy, 2013. This policy aims at protecting, facilitating and encouraging optimal Maternal Infant and Young Child Nutrition as well as creating an environment that fosters nutrition wellbeing in order to uphold the right of every child to be well nourished through good breastfeeding practices and appropriate complementary feeding (table 7).

Table 7. Regression analysis on education level and knowledge on food groups
Таблица 7. Регрессионный анализ уровня образования и знаний о группах продуктов питания

Correlations			
		Highest level of education	Ever heard of the 3 food groups
Highest level of education	Pearson Correlation	1	.691**
	Sig. (2-tailed)		.000
	N	204	204
Ever heard of the 3 food groups	Pearson Correlation	.691**	1
	Sig. (2-tailed)	.000	
	N	204	204
**. Correlation is significant at the 0.01 level (2-tailed).			

The table 7 above shows existence of significant association between caregivers' education level and knowledge on the three food groups. From the regression data on the named variables, it was established that formal and nutritional literacy of caregivers had a positive effect on knowledge on the three food groups. This implied that exposure to both formal and nutrition literacy translated to caregivers having knowledge on good child feeding practices and having an understanding of proteins, carbohydrates and vitamins. Therefore, literate caregivers are able to ensure good feeding practices through balanced diet for their children which promotes healthy growth and development.

Caregivers' feeding practices

The Infant and Young Child Feeding recommends guidelines to

establish the feeding practices and they include continued breastfeeding, minimum meal frequency, minimum dietary diversity as well as minimum acceptable diet [1, p.6]. In this study, feeding practices were associated with indicators such as exclusive breastfeeding, complementary feeding as well as quantity and quality of foods. The researcher therefore looked at knowledge on exclusive breastfeeding, complementary feeding knowledge, dietary diversity, meal frequency for children aged five and below as well as quality and quantity of food.

Timely introduction to breastfeeding

Timely introduction to breastfeeding can be described as putting the neonate to the breast within one hour of delivery. This early initiation to breastfeeding highly contributes to the survival of the newborn. The study by WHO showed that 22% of newborn deaths are preventable if breastfeeding was initiated not later than an hour after delivery. In spite of this fact, only (45%) of neonates started breastfeeding within one hour of delivery worldwide [5, p.8]. Data gathered by use of questionnaires showed that majority (40.7%) of the caregivers were not aware of the need to introduce breastfeeding instantly after birth. These findings signify failure of caregivers to adhere to timely introduction to breastfeeding as per the WHO guidelines. Statistical analysis of data from 204 caregivers showed that 22.5% initiated breastfeeding 30 minutes after delivery, 40.7% initiated 1 hour after delivery, 17.2% initiated breastfeeding within the first day whereas 19.6% initiated breastfeeding the following day after delivery.

The Community Health Volunteers (CHVs) probed explained that place of birth and timely introduction to breastfeeding were considerably associated. This is because incidences of timely introduction to breastfeeding were observed amongst children delivered in health centres as opposed to the children that were delivered at home or with the assistance of Traditional Birth Attendants (TBAs). This implies that there is some feeding practice knowledge-gaining on breastfeeding in health centres, which may be lacking in TBAs. Mothers who deliver at home therefore miss out on important knowledge given at the MCH clinics on timely introduction of breastfeeding resulting to poor breastfeeding practices.

Oral in-depth interviews with the Community Health Volunteers showed that the caregivers would receive wrong information on timely introduction to breastfeeding when they delivered through the help of Traditional Birth Attendants (TBAs).

During an Interview, a CHV explained:

Some of the misconceptions by the traditional doctors are that: The initial milk may affect the child's tummy thus recommends that the child to be fed on warm water. The Traditional birth attendants also believe that the mother and the child require some duration to rest after delivery. This is the information they give the caregivers.

Another CHV explained during an Interview:

It is a common belief amongst caregivers instigated by TBAs that in instances where a child is delivered after numerous still births or new born deaths, the mothers are not supposed to breastfeed instantly until the mother and the child are given traditionally made herbs or medicine.

The significance of initiating breastfeeding at an early stage is recognized by the World Health Organization which advocates for introduction of breastfeeding within a period of one hour after giving birth for every neonate delivered at term or with a gestational age higher

than 32 weeks or birth weight higher than 1500 grams [1, p.6]. This can only be achieved through creation of awareness amongst caregivers and enhancing their literacy levels on the importance of timely introduction to breastfeeding since they form an important part of the microsystem, the closest surrounding in which a child grows as per Bronfenbrenner's theory. Literate caregivers are able to disregard unfounded beliefs and misconceptions regarding untimely introduction to breastfeeding for infants.

Exclusive breastfeeding

Exclusively breastfeeding a child for the first six months prevents newborn and infant mortalities through a reduced risk of infectious illnesses. In Ndhiwa sub-County, knowledge on exclusive breastfeeding (EBF) stood at 77.4% meaning that majority of the caregivers were aware of the importance of exclusive breastfeeding. However, statistical analysis of data from the 204 caregivers showed that 34.8% practiced exclusive breastfeeding while 65.2% did not practise exclusive breastfeeding. Findings from Key Informant Interviews and Focus Group Discussions showed that practise of EBF was hindered by a number of factors:

One of the major barriers to exclusive breastfeeding was that of receiving wrong information from the Traditional Birth Attendants advising caregivers that breastfeeding alone is not enough for children and therefore they should be fed additional liquids including water or diluted cow milk. Another barrier to exclusive breastfeeding resulted from some of the adolescent mothers having other competing activities. For the few adolescent mothers that went to school after child birth, this implied that they could not successfully practise exclusive breastfeeding. Even though awareness on exclusive breastfeeding was high in Ndhiwa sub-County at 77.4%, the caregivers that took part in the focus group discussions noted that most adolescent mothers translate exclusive breastfeeding to mean "breastfeeding, as well as giving children water or dilute cow milk without solid foods". So long as the baby is on breast milk and other food, the caregivers believe that it qualifies to be exclusive breastfeeding.

Exclusive breastfeeding for the first 6 months can make a major contribution towards reducing neonatal and early infant mortality, thus advancing SDG number 3 [5, p.8]. These goals can be met through ensuring that the caregivers understand the importance of EBF and practice it exclusively. However, as this study shows, the knowledge and practice of EBF is low and this is majorly associated with negative perceptions or cultural beliefs and misinformation by traditional birth attendants. This leads to failure in practicing EBF and hence poor feeding practices of infants which compromises their overall growth.

Continued Breastfeeding

The WHO recommends that mothers continue to breastfeed up to 2 years of age since breast-milk is a significant source of energy and nutrients in children aged 6–23 months. Breastmilk provides half or more of a child's energy requirements between the ages of 6 and 12 months and one third of energy requirements between 12 and 24 months. Breast milk is also an important source of energy and nutrients when a child is sick and reduces deaths among children who are malnourished [1, p.6]. The questionnaires showed that the age during which mothers stopped breastfeeding was different with 20% stopping at less than 6 months, 28.9% stopping at 6-11 months, 37.8% stopping at 12-18 months and 13.3% extending to more than 18 months.

From the Focus Group Discussions, it emerged that when mothers with small children conceived, they are supposed to stop breastfeeding or else the small child falls sick, commonly known as "chira". Chira in dholuo means illness caused by failure to follow some of the Luo traditional practices. It was further established that majority of the mothers had short birth intervals making them stop breastfeeding earlier than required. Another barrier to continued breastfeeding was high cases of HIV/AIDs in the County. From the findings of this study, it is evident that there is low knowledge and practise of continued breastfeeding as seen in the age at which mothers stopped breastfeeding. Therefore, lack of awareness amongst caregivers on the importance of continued breastfeeding and low practise of the same highly hinders healthy growth and development of infants. Failure to continue breastfeeding puts the child at the risk of death within the first two years of life.

Complementary feeding knowledge

Complementary feeding is the process of starting to give liquids, solids, semi-solids or soft foods alongside breastfeeding. From the age of 6 months to 24 months, breastfeeding only is not enough to meet the nutritional needs of a child (WHO, 2008). This section therefore sought to establish how caregivers' nutritional literacy levels influence their complementary feeding habits by looking at factors such as dietary diversity, meal frequency as well as quality and quantity of food.

The researcher first sought to establish the age at which caregivers introduced other foods. Data gathered by use of questionnaires showed that the age during which a child was given other foods apart from breast milk varied where 40% started at 4 to 5 Months, an additional 40% started at 6 Months, 12% at 0 to 3 Months and 8% at 7 Months and above. Almost half of the population (48%) introduced complementary foods before the age of 6 months. Follow up interviews with the Community health volunteers showed that the main reason for introduction of foods before the age of 6 was associated with misinformation mostly from the Traditional birth attendants that breastmilk alone was not enough and hence the infants required additional foods. Additionally, for the few adolescent mothers that were school going or were engaging in economic activities it necessitated introduction of complementary foods at an early age.

It was established that many of the caregivers (56.2%) were feeding their children 1 to 3 times on daily basis. During focus group discussions the caregivers pointed out that some of the foods that were forbidden in the community included eggs. It was a common misconception among caregivers that feeding children on eggs would cause stammering or hinder the development of speech in children below the age of five. This implied that the under-fives had no access to recommended dietary diversity which is important for their development.

The achievement of minimum dietary diversity and minimum acceptable diet is only possible if caregivers are well literate on the required diet for children aged five and below. However, findings from this study show existence of low literacy on dietary diversity and minimum diet as evidenced by failure to give children foods like eggs due to misconceptions. These practices do not adhere to the guidelines outlined in the National Nutrition Action Plan, 2012-2017 which emphasizes on appropriate feeding of children during the first five years of life while

putting more attention on those aged two and below in order to prevent undernutrition or overnutrition. Therefore, the policy should be revised and include a strategy of creating awareness and educating caregivers on appropriate complementary feeding and also help do away with unfounded misconceptions. Failure to adhere to these guidelines due to lack of awareness leads to children aged five and below having limited access to the recommended dietary diversity and acceptable meals which may compromise the nutritional status of these children through poor feeding practices (tables 8-9).

Table 8. Highest level of education * Ever received education on good child feeding practices (Crosstabulation)
Таблица 8. Самый высокий уровень образования * Из когда-либо получавших образование по надлежащей практике кормления детей (Кросстабилизация)

Highest level of education		Ever received education on good child feeding practices		Total
		Yes	No	
Secondary not completed	Count	32	29	61
	Standardized Residual	2.3	-1.7	
Primary school	Count	35	60	95
	Standardized Residual	.3	-.2	
No school	Count	4	44	48
	Standardized Residual	-3.1	2.3	
Total	Count	71	133	204

Table 9. Highest level of education * Ever received education on good child feeding practices (Chi-Square Tests)
Таблица 9. Самый высокий уровень образования * Из когда-либо получавших образование по надлежащей практике кормления детей (Тесты на Хи-квадрат)

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	23.376a	2	.000
Likelihood Ratio	26.666	2	.000
Linear-by-Linear Association	22.343	1	.000
N of Valid Cases	204		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 16.71.			

Null hypothesis (Ho): There is no association between the caregivers' literacy levels and feeding practices among under-fives. Chi square test done on caregivers' formal literacy versus knowledge on good child feeding practices showed p value to be 0.000, less than alpha, 0.05. That implies rejection of the null hypothesis and acceptance of an existence of a significant association between the caregivers' literacy levels and feeding practices.

This implied existence of a

significant association between the two variables, that is literacy levels and knowledge on good child feeding practices. Therefore, this means that being literate implied better feeding practices amongst the under-fives since the caregivers had exposure to the three food groups. Additionally, if caregivers have nutritional literacy either from MCH, school or from kins, they tend to give better care to their children aged five and below in terms of nutrition. However, in case where caregivers have both formal literacy and nutritional literacy, this has a positive impact on the day-to-day upbringing of the children. Caregivers with high formal and nutritional literacy can make good choices when it comes to nutritious foods and diverse or variety of diets for the children under their care as opposed to those without such knowledge. This leads to better feeding practices of such children which enhances their overall growth and development.

Discussion

The study established that there was low practice on timely introduction to breastfeeding at 40.7% due to caregivers giving birth through the help of traditional birth attendants who misadvised the caregivers on timely initiation of breastfeeding. The study also revealed that there was low exclusive breastfeeding rate at 34.8% due to community misconceptions. In addition, it was established that there was low continued breastfeeding rate at 1 year and 2 years at 73.7% and 37.3% correspondingly. This goes against the stipulations of various child feeding policies including WHO policy recommendations which for instance document that a child has to be introduced to breastmilk within one hour of delivery and be exclusively breastfed for six months as well as an extension along with complementary foods for two years or longer. These findings are also not in line with the recommendations of the National Maternal, Infant and Young Child Nutrition Policy, 2013 which emphasizes on timely introduction to breastfeeding, exclusively breastfeeding for six months and continued breastfeeding to two years of age. According to this policy, exclusive breastfeeding is highlighted as a key strategy under high impact nutrition interventions.

Qualitative data gathered through focus group discussions showed that misconceptions and delivery through the help of traditional birth attendants were major barriers to timely initiation of breastfeeding as well as Exclusive breastfeeding. The study further established that the under-fives did not have access to appropriate complementary diet. It emerged that the main challenge facing complementary feeding was some of the foods being forbidden in the community due to misconceptions.

The study further established that there was low nutrition literacy amongst caregivers who were not aware of the three food groups and the suitable diet for a sick child. Due to lack of knowledge on the required diet for the under-fives, the caregivers did not adhere to minimum dietary diversity and minimum acceptable diet which compromises their nutritional status.

For Caregivers' formal and nutrition literacy versus feeding practices by use of Chi-square test of independence, it was established that $p=0.000$ which was less than $\alpha=0.05$ at 95% confidence interval. This implies existence of a significant relationship between caregivers' formal and nutrition literacy levels and feeding practices of the under-fives. That implies rejection of the null hypothesis and acceptance of an existence of a significant association between the caregivers'

formal and nutrition literacy levels and feeding practices. Therefore, the study concluded that formal and nutrition literacy equips caregivers with knowledge on exclusive breastfeeding, appropriate complementary feeding practices as well as knowledge on the three food groups.

CONCLUSION

The study concludes that formal and nutrition literacy helps caregivers understand the importance of practicing exclusive breastfeeding, timely introduction to breastfeeding and continued breastfeeding since they are able to avoid misinformation by fellow caregivers and traditional birth attendants.

The study also concludes that formal and nutrition literacy play a big role in enhancing the nutritional status of under-fives through better feeding practices. Literate caregivers are aware of the type of foods to feed their children and ensure balanced diet and are capable of disregarding misconceptions towards some type of foods. Therefore, having both formal and nutrition literacy equips caregivers with better knowledge on dietary diversity and minimum acceptable diet for the under-fives which is essential for their healthy development and also helps the government to meet the policy objectives for reducing child mortality.

Based on the study findings and the conclusions drawn, the study makes the following recommendations aimed at helping the government in formulation of better policies. It was established that timely introduction to breastfeeding and exclusive breastfeeding is low as a result of misconceptions and misinformation by fellow caregivers. The study also established that poor complementary feeding practices were as a result misconceptions and lack of knowledge on the three food groups. Failure to provide good diet for the under-fives undermines the achievement of policy objectives outlined in the National Maternal, Infant and Young Child Nutrition, 2013. The study recommends that the County health department initiates and scales up Infant and Young Child Nutrition (IYCN) education and creation of awareness both at MCH clinics and within the community. Another recommendation is entrenching nutrition education in the school curriculum. By so doing, once caregivers acquire formal literacy, they will also have nutrition literacy. Additionally, the mass media needs to create awareness on nutrition matters since malnutrition is associated with almost half of all the under-five mortalities.

The study also recommends training and capacity building of every traditional birth attendant in Ndhiwa sub-County on breastfeeding practices such as timely introduction to breastfeeding and exclusive breastfeeding and use them in bringing change in terms of perceptions. It is also recommended that health department transmits targeting communications aimed at averting negative perceptions within the community on timely introduction of breastfeeding and colostrum feeding to infants while targeting traditional birth attendants and communal leaders.

Scaling up of Exclusive Breastfeeding campaigns is also recommended in Ndhiwa sub-County to enhance the practice. The campaign ought to be focused on sufficiency of breast milk for children aged 6 months and below as well as advising caregivers to do away with perception hindering exclusive breastfeeding as outlined in the current study. Most importantly, as a result of high cases of adolescent pregnancy in the sub-County, it is crucial to initiate and educate

adolescent mothers how to express breast milk for their children to enable them breastfeed even when mothers are away.

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