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Health Workers Knowledge, Attitude and Practices on Nutrition Information in Mother Child Health Handbook in Turkana West Sub-County, Kenya: A Cross Sectional Study

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Abstract

Background: The Mother Child Health (MCH) handbook has been used worldwide to improve maternal and child health. Despite advancement in antenatal and postnatal care; inadequate services in low-income nations hinders progress. Kenya introduced the handbook to improve MCH service integration and key nutrition indicators. With limited studies on the handbook in Kenya the study aimed to assess Health Worker's (HWs) knowledge, attitudes and practices on nutrition information in the handbook.

Methods: A cross-sectional analytical study was conducted in 22 health facilities conveniently sampled for utilizing the MCH handbook in Turkana West Sub-county, Kenya. A total of 68 Health Worker's (HWs) were exhaustively sampled from the health facilities. Systematic random sampling was further used to identify 219 caregivers whose MCH handbooks were reviewed for HWs documentation of nutrition information/services and Focused Group Discussion (FGD) conducted with them on nutrition information/services received. SPSS version 22 was used to analyze data and Chi-square test to test the relationship between variables.

Results: Most of the HWs were nurses (38.2%) aged between 25-34 years (64.7%) with majority being males. The HWs mean knowledge, attitude and practice score was 78.40 ± 20.13 , 77.75 ± 22.20 and 78.97 ± 15.56 respectively. Majority of the HWs had moderate knowledge (41.2%), displayed positive attitudes (39.7%) and moderate practices (42.6%).

Conclusion: Despite their positive attitudes, HWs failed to display optimal practices due to insufficient knowledge. The study recommends Ministry of health to provide nutrition training and support supervision for HWs to improve use of nutrition information and services in the handbook.

Keywords: Maternal and child health handbook; Health workers; Knowledge; Attitude and practices

Abbreviations

CHEW: Community Health Extension Worker; FGD: Focused Group Discussion; GAM: Global Acute Malnutrition; HWs: Health Workers; HIV: Human Immune-Deficiency Virus; IFAS: Iron Folic Acid Supplementation; IU: International Units; KDHS: Kenya Demographic and Health Survey; MCH: Maternal and Child Health; MIYCN: Maternal Infant and Young Child Nutrition; MUAC: Mid-Upper Arm Circumference; SPSS: Statistical Package of Social Sciences; VAS: Vitamin-A Supplementation

Introduction

Almost 10 million children under the age of five years die globally, of which about half of the deaths occur within the first year of life [1]. There is also an estimated 289,000 maternal deaths globally, with 20 million mothers suffering from maternal morbidity [2]. In several countries worldwide, there are numerous programmes to improve Maternal, Neonatal and Child Health (MNCH) during antenatal and postnatal care. The Maternal and Child Health (MCH) handbook was developed to address these maternal and child health problems. It educates mothers and enhances communication between healthcare providers and the mothers [3]. The MCH Handbook contains sections to keep a complete health record of pregnancy, childbirth, immunizations,

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and the child's growth to enhance the quality of services [4]. The MCH handbook originally from Japan helped to reduce the Infant Mortality Rate from 76 per 1,000 births in 1947 to 2.6 per 1000 births in 2007 where as in a Bangladesh study; pregnant women with the handbook had more MCH information and high utilization of MCH services [4-6]. Upon realizing the usefulness of the handbook, both developing and developed countries in the world have introduced the MCH handbook initiatives [5]. To address poor health service integration, Kenya joined the international world to launch the MCH handbook in 2010 with various services in the health sectors such as immunization, nutrition, infection & disease control incorporated [7,8]. The MCH handbook contains sections with key nutrition indicators of concern for mother and child health which include Iron Folic Acid Supplementation (IFAS), vitamin-A Supplementation (VAS), Maternal Infant and Young Child Nutrition (MIYCN), deworming, and growth monitoring [8].

Despite worldwide improvement in levels of antenatal and post-natal care only 46% of women in low-income nations benefit from the services, with factors such as inadequate services and lack of awareness hindering the progress [2]. Although child survival had improved globally due to preventive services such as immunization, poor nutrition in particular continues to be the main risk factor for child mortality and even with the inclusion of key nutritional interventions into child health packages; they still have little or no coverage [9,10]. Kenya Demographic Health Survey [KDHS] 2008-2009 report [11], showed only 53% of women attending MCH clinic get information about infant feeding from health workers. In Turkana County, low rates (31.6%) of exclusive breastfeeding practices were reported from the most recent Knowledge Attitude and Practice survey [12]. Adequate promotion of breastfeeding depends on the interaction between health workers and mothers during the pre-natal period, at childbirth and postnatal visits. However, HWs have been found to lack adequate knowledge and display poor attitudes and practices on breastfeeding [13]. The Global Acute Malnutrition (GAM) rate in Turkana West Sub-county has been fluctuating between serious and critical while utilization of 90 plus IFAS for pregnant women and VAS for children under five has been below the target of 30% and 80% respectively. Placement of VAS at a lower level of priority among other interventions by HWs has been cited as a major challenge in achieving the supplementation goals [14-17].

Studies have revealed that effective use of the MCH handbook leads to increased utilization of MCH services. However to achieve this HWs should have adequate knowledge, attitudes and practices [5]. Kenyan studies assessing utilization of the MCH handbook reported that most health workers had poor understanding on its content and their recording of information in some sections of the handbook was inadequate [18,19]. With limited information regarding the HWs knowledge, attitudes and practices towards nutrition information in the handbook the study sought to evaluate whether health workers are able to utilize the MCH handbook as a tool to ensure they provide the recommended nutrition services and appropriately record the nutrition information in the handbooks. The findings will be critical in identifying HWs nutrition capacity status, identify gaps and provide baseline data on use of the handbook as no study has been done in Turkana since its introduction in 2010.

Methods

Study design

The study adopted a cross-sectional analytical design with

qualitative and quantitative analysis. This method was adopted as it has been used in several nutrition studies where data is collected at a single point in time to assess nutrition indicators [20].

Study area and population

The study was conducted at the MCH section of 22 health facilities (17 Ministry of Health and 5 Faith Based Health facilities) in Turkana West Sub-county of Turkana County, Kenya. The facilities were selected as they were the only ones utilizing the Kenyan MCH handbook for their routine MCH services at the time of the study [21]. Health workers stationed at the MCH section of these facilities were the main target population. To review health workers documentation of nutrition information in the handbook, caregivers attending MCH services were also targeted.

Sampling

The study employed exhaustive sampling of all the health workers attached to the MCH section in the selected health facilities. Sample size for the number of caregivers whose MCH handbooks were to be assessed was calculated by using the formula: $N = Z^2 P (100-P) / \epsilon^2$ yielding 196 caregivers with an additional 10% to cater for non-response resulted to 216 caregivers [22]. The study also conducted 22 focused group discussions, one in each facility with the group of caregivers whose handbook was sampled for data review.

Data collection

Data was collected through a researcher administered questionnaire on 68 HWs; a data review checklist used on 219 caregivers' handbooks to assess HWs recording of nutrition information and focused group discussion guide administered to the caregivers to collect additional data on nutrition information and services in the handbook they received from the HWs.

Data analysis

Data was analyzed using SPSS version 22 for windows allowing for quantitative analysis by use of descriptive statistics such as means, percentages and frequencies. The level of health workers' knowledge, attitudes and practices were identified based on their correct responses to the question on nutrition information and services in the MCH handbook. The scores were calculated by awarding one point to each correct response and zero to those with wrong or noncommittal (Don't know) responses. The health workers' total correct responses in percentage was used to determine overall score on knowledge, attitudes and practices and categorized as per Food and Agriculture Organization guidelines (Table 1) [23]. Chi-square test was used to determine the relationships between practices on nutrition information in the handbook to the socio-economic characteristics, nutritional knowledge and attitudes of the health workers. Statistical significance was set at $p < 0.05$.

Ethical Approval

Clearance and approval to conduct research was obtained from Kenyatta University Ethical Review Committee reference number KU/ERC/APPROVAL/VOL.1 (270). A research permit was obtained from National Commission for Science, Technology and Innovation reference number NACOSTI/P/17/92455/19086. Authority to conduct research was obtained from the Sub-county Ministry of Health in Turkana West Sub-County. Verbal voluntary informed consent was obtained from the health workers and caregivers to participate in the study. There was full disclosure of possible benefits and compensation.

Table 1: Categories for nutrition knowledge, attitudes and practice scores.

Categories	Percentage score
Low knowledge, Negative attitudes, poor practices	≤ 70 %
Moderate knowledge, Neutral attitudes, Moderate practices	71– 89%
High knowledge, positive attitudes, optimal practices	≥ 90%

Results

Socio-economic characteristics of HWs at the MCH section

The socio-economic characteristics of the health workers revealed that majority of the health workers (64.7%) were between 25-34 years of age and males were slightly more at 51.5%. Majority (69.1%) of the health workers reported tertiary college as their highest level of education while those who had not attended school were 13.2%. Most (33.8%) of them had stayed between 2-3 years in the MCH and only 29.4% of the health workers reported to have received professional training on nutrition. A large percentage (83.8%) of the health workers received training on the MCH handbook through on the job training (Table 2). In terms of professional background nurses were the majority (38.2%), followed by nutritionist (17.6%) and Community Health Volunteers (14.7%) among other professions (Figure 1).

Knowledge of health workers on nutrition information in the MCH handbook

The health workers’ knowledge was assessed through a series of questions generated from the nutrition sections of the MCH handbook and organized into four themes; knowledge on infant feeding, micronutrient supplementation, deworming and growth monitoring. Under knowledge on infant feeding a majority (91.2%) of the health workers had heard of exclusive breastfeeding and could correctly define its meaning. Nearly half (47.06%) of the health workers did not know any of the signs of good attachment for breastfeeding. Regarding micronutrient supplementation despite a large proportion (91.2%) of the health workers knowing that IFAS is given to pregnant women, only 64.7% knew the recommended duration of intake of IFAS. Although most (97.1%) of the health workers knew the color of VAS for children above one year, only 79.4% knew its dosage. The recommended deworming tablet (Mebendazole) given during pregnancy was known by 88.2% of the health workers though only about a half (55.9%) knew the recommended trimester to be issued. Most (89.7%) of the health workers were able to identified the recommended period of growth monitoring for under five and only 66.2% knew the recommended normal weight gain during pregnancy (Table 3).

The health workers’ overall mean knowledge score was 78.40 ± 20.13 with a majority (41.2%) of the health workers having ‘moderate’ knowledge and only about a third (35.3%) had ‘high’ knowledge having scored above ninety percent (Figure 2).

The health workers’ attitudes on nutrition information in the MCH handbook

The health workers attitudes were assessed through a combination of negative and positive statements that used a 4-point Liker’s scale and perception questions on the nutrition information/services in the MCH handbook. In regards to infant feeding although all (100%) the health workers agreed that breast milk alone was adequate for the first six months of life, fewer (75.0%) concurred on the feasibility of exclusive breastfeeding. Only half (50.0%) of the health workers

Table 2: Socio-economic characteristics of the health workers.

Socio-economic characteristics	n=68	%
Age		
18-24 years	10	14.7
25-34 years	44	64.7
35-60 years	14	20.6
Sex		
Male	35	51.5
Female	33	48.5
Level of education		
Never attended school	9	13.2
Primary	2	2.9
Secondary	1	1.6
Tertiary college	47	69.1
Graduate college	9	13.2
Length of stay at the MCH		
1 year and below	10	14.7
2-3 years	23	33.8
4-5 years	17	25.0
Above 5 years	18	26.5
Nutritional background		
Professional training	20	29.4
On the job training	27	39.7
Workshop/seminar	13	19.1
None	8	11.8
Training on MCH handbook		
On the job training	57	83.8
None	11	16.2

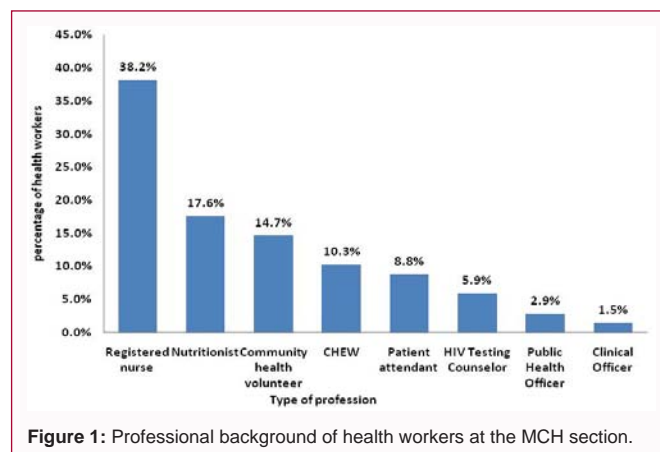


Figure 1: Professional background of health workers at the MCH section.

strongly agreed that it was alright for mothers to express and store breast milk to feed the baby when she is away. On growth monitoring all (100%) of the health workers felt that under nutrition was serious for the baby and a majority (64.7%) strongly disagreed that babies should only be brought for growth monitoring when they have immunization scheduled. In relation to micronutrient supplements more than three quarters (77.9%) of the health workers strongly disagreed that it is dangerous for pregnant women to take iron foliate tablets throughout pregnancy and most (89.9%) of them felt that lack

Table 3: Health workers' knowledge on nutrition information in handbook.

Nutrition information in handbook	n=68	%
Heard about exclusive breastfeeding		
Yes	62	91.2
No	6	8.8
Signs of good attachment for breastfeeding		
Knows all signs	12	17.65
Knows three signs	7	10.29
Knows two signs	7	10.29
Knows one sign	10	14.71
Don't know	32	47.06
Supplementation given during pregnancy		
Iron and folic acid	62	91.2
Iron only	3	4.4
Folic acid only	2	2.9
Other	1	1.5
Recommended duration for IFAS		
At least 90 days or throughout pregnancy	44	64.7
Other	21	30.9
Don't know	3	4.4
Colour of Vitamin A for 1 year		
Red	66	97.1
Don't know	2	2.9
Dose of Vitamin A for one year old child		
200,000IU	54	79.4
Don't know	14	20.6
Recommended deworming tablet during pregnancy		
Mebendazole	60	88.2
Other	8	11.8
Recommended trimester for deworming		
Second trimester	38	55.9
Other	30	44.1
Recommended period for growth monitoring services		
Monthly from birth to five years	61	89.7
Other	7	10.3
Recommended normal weight gain during pregnancy		
12kg with average of 1kg per month	45	66.2
Other	17	25.0
Don't know	6	8.8

of Vitamin-A was serious (Table 4).

The health workers' overall mean attitude score was 77.75 ± 22.20. A majority (39.7%) of the health workers had the desired 'positive' attitude on nutrition information in the handbook while about quarter (26.5%) had 'negative' attitudes (Figure 3).

The health workers practices on nutrition information and services

The health workers practices were assessed through a series of practice related questions in the questionnaire and through data review of health workers' documentation of nutrition information

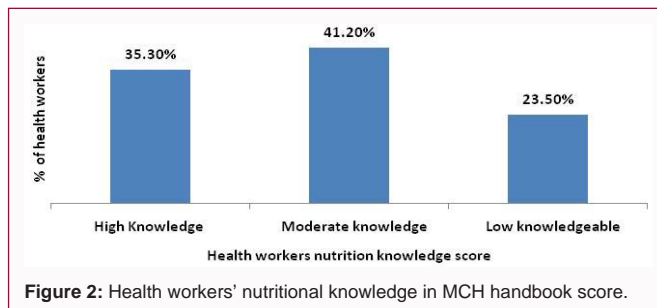


Figure 2: Health workers' nutritional knowledge in MCH handbook score.

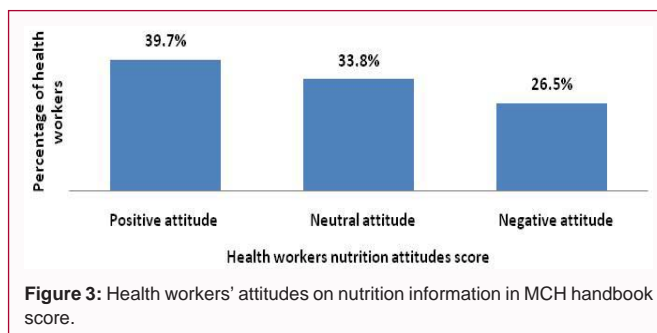


Figure 3: Health workers' attitudes on nutrition information in MCH handbook score.

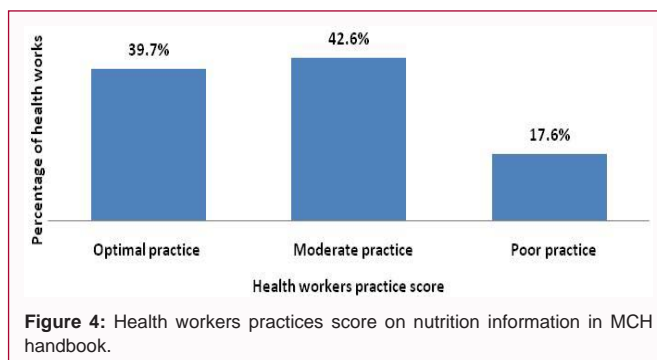


Figure 4: Health workers practices score on nutrition information in MCH handbook.

and services in the caregivers MCH handbooks. Focused group discussions were conducted on the caregivers and the information used to triangulate data obtained from the questionnaire and data review.

The health workers' self-reported practices on the nutrition information

In regards to breastfeeding, majority (94.1%) of the health workers were able to advise on the recommended period for breastfeeding initiation and 98.5% emphasized that breastfeeding should continue after six months. Only 66.2% of the health workers could correctly advise on the recommended number of meals and snacks a baby age between 9-23 months should eat. All (100%) the health workers were able to correctly recommend on the number of IFAS tablets a pregnant woman should take in a day and nearly all (97.1%) advised on the correct interval for issuing Vitamin-A to children under five years. On growth monitoring less than a half (41.2%) of the health workers reported to taking all the required measurements, though all the health workers mentioned taking weight measurements. Given a sampled weight for age chart, only 36.8% correctly interpret the chart as moderate acute malnutrition (Table 5).

The health workers overall practice had a mean score of 78.97 ± 15.56. A majority (42.6%) of the health workers had 'moderate' practices while about twenty percent (17.6%) depicting 'poor' practices (Figure 4).

Table 4: Health workers' attitudes on infant feeding, growth monitoring and supplementation.

Attitudes on nutrition information	n=68	%
Breastmilk alone enough up to six months		
Strongly agree	68	100.0
Difficult to exclusive breastfeed for 6 months		
Strongly disagree	51	75.0
Disagree	14	20.6
Strongly agree	3	4.4
It is ok to express and store breastmilk to feed the baby		
Strongly disagree	2	2.9
Disagree	8	11.8
Agree	24	35.3
Strongly agree	34	50.0
Is under nutrition serious for a baby's health		
Serious	68	100.0
The baby should be brought for growth monitoring only when they have immunization scheduled		
Strongly disagree	44	64.7
Disagree	4	5.9
Agree	15	22.1
Strongly agree	5	7.4
It is dangerous for pregnant women to take IFAS throughout pregnancy		
Strongly disagree	53	77.9
Disagree	12	17.6
Agree	1	1.5
Strongly agree	2	3.0
Is lack Vitamin A serious		
Not sure	7	10.3
Serious	61	89.7

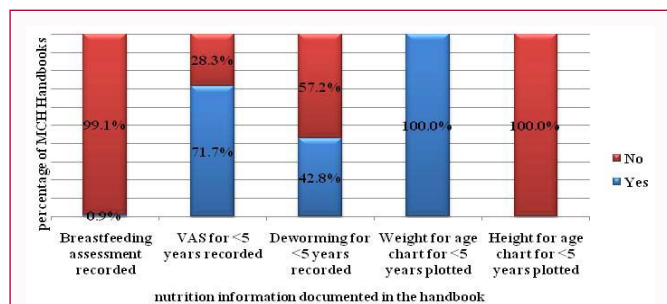


Figure 5: Health workers' documentation of nutrition information for children under five.

The health workers' documentation of nutrition information and services in the MCH handbook

219 caregivers' handbooks were reviewed to assess the recording of antenatal and postnatal nutrition information covering infant feeding, micronutrient supplementation, deworming and growth monitoring. In regards to infant feeding only 0.9% of the handbooks had documentation of breastfeeding assessment noted. VAS for under-fives was recorded in at least 71.7% of the handbooks while deworming was recorded in less than a half (42.8%) of the handbooks. Although all (100%) of the weight for age chart for children under five years were recorded notably, none of the handbooks had the height

Table 5: Health workers' self-reported practices on nutrition information in MCH handbook.

Practices on nutrition information	n=68	%
Initiation of breastfeeding		
Within first hour of birth	64	94.1
Other	4	5.9
Is breastfeeding recommended after six months		
Yes	67	98.5
No	1	1.5
How many times a 9-23months baby should eat		
3-5 times	45	66.2
Other	23	33.8
Number of IFAS tablets pregnant woman takes in a day		
One per day	68	100.0
Interval of Vitamin A to child under five		
Every six months	66	97.1
Other	2	2.9
Measurements to take during growth monitoring		
Weight, & height	28	41.2
Weight & MUAC	18	26.5
Weight	22	32.4
Weight for age chart interpretation		
Child moderately malnourished	25	36.8
Child is malnourished	36	52.9
Other	2	2.9
Don't know	5	7.4

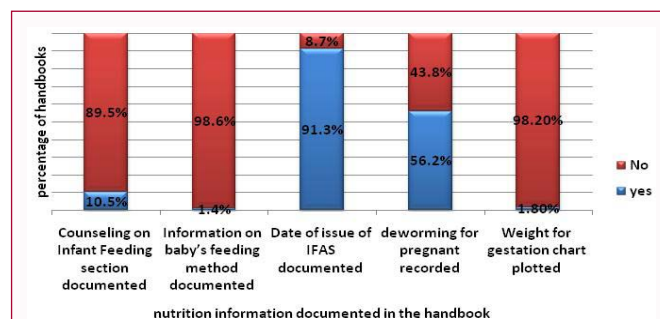


Figure 6: Health workers' documentation of nutrition information for mothers.

for age chart plotted (Figure 5).

Under the antenatal section documentation on infant feeding counseling was noted in only 10.5% of the handbooks and on the postnatal section very few (1.4%) of the handbooks had information on infant feeding method recorded. In relation to micronutrient supplementation for pregnant women, a majority (91.3%) of the handbooks had the date of issue of IFAS documented. Date of deworming for pregnant women was recorded in 56.2% of the handbooks and only 1.8% of the handbooks had the weight for gestation chart for the pregnant women plotted (Figure 6).

The focused group discussions with caregivers on nutrition information and services received on the MCH handbook

Focused group discussions were conducted with caregivers whose MCH handbooks were sampled for data review on documentation of

Table 6: Feedback from focused group discussion.

Nutrition information and services given to caregivers	Percentage of caregivers
Information on purpose of the handbook	36.4%
Information on infant feeding	100.0%
Information on purpose of IFAS	84.7%
Received IFAS during pregnancy	100.0%
Vitamin A given to under five	100.0%
Weight for under five taken	100.0%
Height taken at MCH	0.0%
feedback on child's growth monitoring	26.9%

nutrition information. The FGDs were aimed at gathering additional information on the nutrition services and information the caregivers received from the health workers at the MCH. Only a third (36.4%) of the caregivers reported to have received information on the purpose of the MCH handbook when it was issued. More than three quarter (84.7%) had received information on the importance of IFAS. All groups had received IFAS, VAS and weight of children under-five taken during growth monitoring. None (0%) had height taken during growth monitoring and very few (26.9%) reported to have received feedback on the growth monitoring (Table 6).

Relationship between health workers knowledge, attitudes and socio-economic characteristic with their practices on nutrition information in the MCH handbook

The Chi-square test was used and established significant relationship between the HWs' nutrition practices to their nutritional knowledge, attitudes and socio-demographic characteristics (age, education, profession, nutrition background and training). Sex and length of stay at the MCH were not significantly related to nutrition practices (Table 7).

Discussion

Findings from this study showed that majority of the health workers were young adults in the age group of between 25-34 years and male health workers were more compared to females at the MCH section. These findings concurred with another Kenyan study where a high percentage of health workers in that age group and sex for Turkana County were also observed [24]. The study also had majority of the health workers being new staff who were recruited less than five years ago which was in agreement with the Turkana County Integrated Development plan that recruited health workers between 2013 and 2017 to improve accessibility of health services [25].

The health workers were found to have basic knowledge on information regarding breastfeeding and complementary feeding practices in the MCH handbook. It was interesting to note that the health workers performed well in straight forward ('define' or 'state') knowledge questions than in questions that required them to provide detailed information. This was depicted for example in their poor performance on the questions regarding listing signs of good attachment in breastfeeding. It was also noted that they depicted poor practices when it came to in-depth one-on-one counseling on infant feeding evident from their poor documentation of these services in the MCH handbook. These finding concurred with Adeniyi [26] in Nigeria and Abebe [27] in Ethiopia who found that a majority of health workers couldn't list three advantages of breastfeeding nor classify food groups in a baby's diet. Majority of the health workers depicted positive attitudes towards breastfeeding and complementary

Table 7: Relationship between health workers knowledge, attitudes and socio-economic characteristic with their practices.

Relationship between Practice score and other variables	Variable	Statistics
	knowledge	$\chi^2 = 36.712$ df= 4, p=<0.001*
	Attitude	$\chi^2 = 20.888$ df= 4, p=<0.001*
	Age	$\chi^2 = 11.242$ df= 4, P= 0.024*
	Sex	$\chi^2 = 1.623$ df= 2, P= 0.444
	Level of education	$\chi^2 = 38.921$ df= 8, P<0.001*
	Profession	$\chi^2 = 53.347$ df= 14, P<0.001*
	Length of stay at MCH	$\chi^2 = 9.011$ df= 6, P= 0.173
	Nutritional background	$\chi^2 = 20.390$ df=6, P =0.002*
	Training on handbook	$\chi^2 = 12.861$ df= 2, P=0.002*

*Significant at p<0.05.

feeding such as adequacy of exclusive breastfeeding and feasibility of breastfeeding. Nonetheless some negative attitudes were observed towards breast milk expression. These findings are similar with the study in Ethiopia on positive attitude toward sufficiency and feasibility of exclusive breastfeeding though it contradicts the current study with negative attitudes on complementary feeding [27]. The negative attitudes in both studies go hand in hand with the observed poor nutritional knowledge of the health workers in these aspects.

As in previous studies [28,29], majority of the health workers in the current study had good knowledge and practices on micronutrients supplementation as they knew the type and importance of micronutrients supplementation issued to women and children at the MCH. Additionally, the current study FGDs and data review findings also affirmed the good practices as all groups reported receiving Iron and Folic Acid Supplementation (IFAS) and it was well documented in most of the handbook. Consequently, the Turkana 2018 Survey [17], reported over ninety percent coverage of IFAS for pregnant women. Nonetheless some of the health workers had challenges with knowledge on Vitamin A dosage for children above one year and duration of intake of IFAS a finding consistent with previous studies [29,30]. Kimiywe [30] observed that little or no information was given to women on IFAS. However, commendable positive attitudes were observed on IFAS and VAS by the health workers findings that are supported by an earlier study where over ninety percent of healthcare providers viewed micronutrient supplementation as beneficial and significant to children and mothers [30].

Findings similar to the current study on deworming were observed where health workers had challenges with administration of the drug among pregnant women and poor practice on its documentation. The study attributed this to health service integration that over burdens health workers and posed logistical challenges [31].

The health workers were found to be knowledgeable on importance and the recommended period for growth monitoring, however they could not identify the recommended gestation weight gain and had poor practice documenting gestational weight. Another Kenyan study observed that health workers routinely weighed pregnant women at the Antenatal clinic as a standard recommendation of Focused Ante Natal Care but not for the purpose of monitoring appropriate weight gain hence they rarely plotted the weight for gestation charts [20]. Studies have attributed this to health workers placing low priority to gestational weight among other prenatal activities [20,32]. Poor

practices were also noted where majority of the health workers could not correctly interpret a sample weight for age chart, did not give feedback on growth monitoring and their lack of documentation of height for age measurements for under-fives. Previous studies had revealed gaps in health workers' knowledge and skills to interpret growth charts resulting in limited feedback to caregivers [33,34].

Some health workers depicted negative attitudes on relevance of monthly growth monitoring, a finding validated by an earlier study that observed low motivation by health workers to perform growth monitoring activities regularly due to heavy workload and low competence on interpreting growth charts [34].

Overall less than a half of the health workers were found to be knowledgeable (ranked 'high' knowledge) and displayed desired optimal practices on nutrition information in the MCH handbook. Similar findings were observed in other studies which attributed this to inadequate training, lack of supervision, and difference in trainings received by the different cadres of service providers [35,36]. Majority of the health workers were overly observed to have the desired positive attitudes towards nutrition information in the MCH handbook. Contrary to the current study Davies [37] noted that majority of the health providers' attitudes towards nutrition was indecisive leading to inappropriate nutrition services.

A significant relationship was established between the health workers knowledge and attitudes to their practices on nutrition information in the handbook. Previous studies with similar findings acknowledge that lack of knowledge and negative attitudes caused insufficient health practices among health professional [35,38]. Other factors reported to affect practices include lack of supervision, high work load and insufficient nutrition supplies [39]. On relationship between socio-economic characteristics and practices, the current study finding on age and level of education is supported by other studies who observed that mature health workers were associated with optimal practices and related higher education to better performance [40, 41].

Conclusion

The health workers had moderate knowledge, portrayed positive attitudes and moderate practices on nutrition information and services in the handbook. This was evident by the fact that they had basic nutritional knowledge but lacked in-depth knowledge on some aspects of the nutrition information and services. They portrayed positive attitudes on most of the nutrition information and services in the handbook though a few negative attitudes were observed and may be a result of inadequate knowledge in those aspects. Their inability to adequately perform some crucial nutrition practices such as interpretation of growth charts and poor documentation of some nutrition services/information contributed to their moderate practices. The Ministry of Health should stipulate and enforce that the staff stationed at the MCH are sufficiently trained on nutrition information in the handbook to achieve the objective of improving maternal and child nutrition.

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