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Knowledge, Attitudes and Practices of Community Health Volunteers on Growth Monitoring and Promotion of Children Under Five Years in Mwingi West, Kenya

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Abstract

Objectives: The paper describes knowledge, attitudes, and practices of community health volunteers (CHVs) towards growth monitoring and promotion (GMP) of children under five years in Mwingi West Sub-county, Kenya.

Methods: This was a cross-sectional study where comprehensively sampled CHVs (n=124) in the three community health units (CHUs) participated in the study, yielding a response rate of 82.7%. Three focus group discussion with CHVs randomly selected from the three CHUs were conducted. Data was collected using researcher-administered semi-structured questionnaire, with Cronbach's alpha of 0.79, and focus group discussions guide. Statistical Package for Social Sciences (SPSS) version 22 was used to analyse data. Chi-square tests and ANOVA were used to assess socio-demographic differences in the knowledge, attitudes and practices. P-value of $p<0.05$ was considered significant. Content analysis was conducted for qualitative data.

Results: CHVs' mean knowledge score was 6.31±3.077, and mean attitudes score of 9.44±2.373. Self-reported practices among the CHVs varied; 43.5% conducted growth promotion monthly, 68% and 70.2% of the participants respectively advised caregivers on appropriate feeding and healthcare services. Sociodemographic characteristics with relationship to knowledge, attitudes and practices were; age, location of CHU, education level, and duration of working. Identified challenges faced by CHVs include; lack of transport especially in the vast areas, lack of continuous trainings and incentives, and absence of GMPs' counselling cards.

Conclusion: CHVs had positive attitudes, average knowledge, and their practices varied. The ministry of health and stakeholders in the child health should review community health policies focusing on CHVs selection criteria, trainings, and incentives.

Keywords: Community; Growth monitoring and promotion; Knowledge; Attitudes; Practices; Community health volunteer

Abbreviations

ANC: Ante-natal Care; ANP: Applied Nutrition Programme; BCC: Behaviour Change and Communication; CESVI: Cooperazione E Sviluppo; CHEW: Community Health Extension Worker; CHU: Community Health Unit; CHV: Community Health Volunteer; CHW: Community Health Worker; CRCAH: Cooperative Research Centre for Aboriginal Health; FHWC: Frontline Health Workers Coalition; GAA: German Aglo Action; GM: Growth Monitoring; GMP: Growth Monitoring and Promotion; IYCN: Infant and Young Child Nutrition; KAP: Knowledge, Attitudes and Practices; KII: Key Informant Interview; MDG: Millennium Development Goals; MoH: Ministry of Health; NHSSP: National Health Sector Strategic Plan; SCCFP: Sub-county Community health strategy Focal Person; SCHMT: Sub-county Health Management Team; SCNO: Sub-county Nutrition Officer; SCPHN: Sub-county Public Health Nurse; SDGs: Sustainable Development Goals; WHO: World Health Organization.

Introduction

Community health volunteers with sufficient supplies, well trained, motivated, and supervised, form an integral part of community-based growth monitoring and promotion [1,2]. There are variations in the way they are referred, their roles, and trainings [3]. In Nepal, Female Community Health Volunteers (FCHVs) are used to distribute Vitamin A, and in detection and treatment of

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common illness. Health Extension Workers in Ethiopia complete one year of field training on promoting preventive health behaviours and making referrals [3].

Kenya is one of the East Africa Countries with an approximate population of 43.18 million people, and about three-quarters of the population live in rural areas [4]. To address poor health indicators, the country has been striving to improve universal healthcare by shifting focus from health facilities to community-based health services delivery, following World Health Organisation (WHO) Alma Ata declaration [4]. The Kenya Community Health Strategy (CHS), a national policy, was therefore developed in 2006 to address maternal and infant mortality attributed to poor availability and access to healthcare services [5,6,7].

Under this strategy, growth monitoring and promotion by Community Health Volunteers (CHVs) working under a Community Health Unit (CHU) should be conducted monthly to all children up to the age of five years [6,7,8]. The CHU which is equated to a sub-location, and where a CHV oversees a defined number of households, is linked to a primary health facility [5]. And although the strategy is undergoing revision to align it with successful models in other countries such as Ethiopia, Ghana and India, CHVs are supervised directly by Community Health Extension Workers (CHEWs), and assisted by the Health Management Team (HMT), at the Sub-county level [4,5,6]. Within a CHU, community health volunteers provide primary healthcare services to households, including referral of clients to primary health facilities [5,9]. And being a useful indicator to nutritional status of the children, GMP is a fundamental primary healthcare service, and in particular to child healthcare services [5,10].

Despite a national drop in the average prevalence of stunting rates from 35% to 26%, there is a significant variation of the stunting rates among different counties in Kenya [11,12]. Kitui County, one of the 47 counties in Kenya, records high (45.8%) stunting rates, being ranked second highest stunting rate in the country [11]. Nevertheless, growth monitoring and promotion by CHVs is an avenue to reducing and preventing malnutrition by improving maternal and child nutrition practices [10]. To achieve this, however, the CHVs should have adequate knowledge, attitudes and practices on GMP. The information regarding the knowledge, attitudes, and practices of the CHVs towards growth monitoring and promotion are limited, and especially in Countries where there has been efforts to improve access of healthcare through community health strategy. It is important therefore to determine the CHVs' level of knowledge, attitudes and practices towards GMP in order to identify existing gaps in the delivery of community-based growth monitoring and promotion services.

The findings are useful in informing the governments and other relevant organisations, both at national and county levels, on community growth monitoring and promotion by CHVs. For policy and guidelines, the findings are useful on what aspects to strengthen towards GMP under the Kenya Community Health Strategy.

Methods

A cross-sectional study with quantitative and qualitative analysis was adopted for this study.

Study area

The study was carried out in Mwingi West Sub-County of Kitui County, Kenya, which was selected because it has functional community health units [13]. Subsistence farming is the main economic activity in the area, and is characterized by frequent drought, poor infrastructure and access to healthcare services [13]. The average distance to the nearest health facility is 30km while doctor to patient ratio stands at 1:50,070 [13]. The functional community health units in Mwingi West Sub-county are found in *Kanyekini, Kea and Nzeluni* sub-locations, linked to *Kanyekini, Kea and Nzeluni* health facilities respectively. The study was, therefore, conducted in these three sub-locations.

Study population

According to Kenya community health strategy, the maximum number of CHVs per CHU is fifty (50). And these CHVs should be mature in age, able to read and write, and though informal, their training is aimed at empowering them with skills and knowledge to read and interpret the mother-child health booklet during their household visits [7,14]. All the CHVs in *Kanyekini, Kea* and *Nzeluni* CHUs were eligible for inclusion in this study.

Sampling

Compressive sampling technique was carried out among the 150 CHVs in the three CHUs, while three focus group discussions with CHVs randomly selected from the three CHUs were conducted.

Data collection tools

Standardised (validated) researcher-administered questionnaire were modified to collect data on CHVs' demographic information, knowledge, attitudes, and practices towards GMP. Test-retest method was used to ensure reliability of the questionnaire, the whole Cronbach's alpha for the questionnaire was 0.79 (95% CI: 0.73 – 0.84). Focus group discussion guide was used to collect qualitative information from CHVs.

Data collection methods

Face to face interviews with CHVs at the health facilities where the three CHUs are linked was conducted. The three FGDs were selected from the three CHUs and were held at *Kanyekini, Kea*, and *Nzeluni* health facilities respectively. The participants were randomly selected. The discussions using FGD guides were tape recorded. Information collected from these FGDs was used to triangulate data from researcher-administered questionnaire.

Data analysis

Data was analysed using statistical package for social sciences (SPSS) version 22. Quantitative data regarding CHVs' demographic information, knowledge, attitudes, and practices were analysed descriptively while qualitative data from open ended questions in the questionnaire and FGD guide were analysed using content analysis. Chi-square tests and ANOVA were used to assess socio-demographic differences in the knowledge, attitudes, and practices of CHVs.

The scores of knowledge were derived by the summation of the correct responses and each correct response was assigned one (1) point while incorrect being assigned zero (0). The highest possible score was 12 whereas lowest score being 0, the scores of 0-4 were categorized as having poor knowledge, 5-8 average knowledge and score of 9-12 was categorised as having good knowledge. Attitude scores were derived from the 5 attitudes questions, using a three-point Likert scale (Agree/Don't know/Disagree). A score of 2 was given for agree response, a score of 1 for don't know response, and a score of zero for disagree response, all questions were positively framed. The highest possible score was 10 whereas lowest score

being 0, respondents with a total score of 5 or less were categorised as having a negative attitude, while a score of 5-10 was categorised as having a good positive attitude.

There was no scoring for practices; the aspects of practices were expressed descriptively.

Results

A total of 150 CHVs were targeted but 124 CHVs participated in the study. The response rate was therefore 82.7%. The most common reason for non-participants was inactive CHVs who declined to be interviewed.

Socio-demographic profile of the Community Health Volunteers

Among the three community health units (CHUs), most (37.1%) of the participants were from *Nzeluni* community health unit (Table 1). Majority of the participants were females (73.4%) and mean age was 45.15, ranging between 26 and 76 years. Most of the CHVs were predominantly married (84.7%). With regards to education level, majority (60.5%) had primary education with only 5.6% having post-secondary education. More than two-thirds (68.1%) of females were housewives. In terms of occupation, most (31.5%) of participants were self-employed and 12.9% were casual workers. Results showed that participants had a mean of 3.34 years duration of working, ranging between 2-5years.

Table 1: Socio-demographic characteristics of the Community Health Volunteers.

Socio-demographic characteristics of CHVs	N=124		
	n	%	Mean ± SD
Age of CHVs in complete years			
≤34	22	17.7	45.15±12.25
35-65	90	72.6	
≥66	12	9.7	
Community Health Unit (CHU)			
Kanyekini	42	33.9	
Kea	36	29.0	
Nzeluni	46	37.1	
Sex			
Male	33	26.6	
Female	91	73.4	
Marital status			
Married	105	84.7	
Single	14	11.3	
Divorced	3	2.4	
Separated	2	1.6	
Education level of CHV			
Pre-school	6	4.8	
Primary/basic	75	60.5	
Secondary	36	29.0	
Post-secondary	7	5.6	
Occupation of the CHV			
Casual worker	16	12.9	
House wife	62	50.0	
Formal/regular job	7	5.6	
Self employed	39	31.5	
Duration of working (years)			
Mean	Std. Deviation		
3.34	0.887		

Community health volunteers' knowledge on GMP

Most of the participants (91.9 %) reported having received initial training upon their recruitment while all participants (100%) had received follow-up trainings. The initial trainings comprised a ten (10) days training on community health strategy basic modules, exempting technical modules, orientation on roles and responsibilities in collecting and reporting health indicators. Follow-up trainings were made to enhance their skills in specific activities such as vitamin A supplementation, deworming, and use of the reporting tools.

Nearly two-thirds (64.5%) of CHVs were aware of using either the mother or a family member in conducting GMP while only 38.7% of the participants were aware of using mother-child health booklet. On the use of the mother-child health booklet, almost three quarters (73.4%) of participants could identify weight-for-age chart while only 33.1% of CHVs were able to identify the last date the child was seen by a health worker at the health facility. In the same proportion, 33.1% were able to show the page used in recording immunization and Vitamin A supplementation status of the child. A participant reported, *"The CHEWs do not show us how to use the mother-child health booklet; we assist each other or get mentored by facility in-charge only when we request them, this is not enough though"*.

Table 2: Community health volunteers' knowledge on GMP.

Characteristics		N=124	
		n	%
Knowledge on source of information to conduct GMP*			
Mother or family member		80	64.5
Mother-child health booklet		48	38.7
MUAC measurement		59	47.6
Knowledge to use mother-child health booklet*			
Ability to identify the last date child was seen in the health facility		41	33.1
Ability to identify weight for age (W/A) chart		91	73.4
Ability to identify immunization status of the child		74	59.7
Ability to identify Vitamin A status of the child		41	33.1
Ability to interpret growth charts*			
Ability to describe growth of baby A (normal growth)		94	75.8
Ability to describe growth of baby B (overweight)		42	33.9
Ability to describe growth of baby C (faltered/underweight)		76	61.3
Knowledge to explain or describe the causes of abnormal growth* (N=118)			
Ability to explain the causes of baby B's (overweight) growth chart		42	35.6
Ability to explain the causes of baby C's (underweight) growth chart		76	64.4
Knowledge score			
Mean	Std. Deviation		
6.307	3.077		
Poor knowledge (0-4)		39	31.5
Average knowledge (5-8)		46	37.1
Good knowledge (9-12)		39	31.5

*Multiple responses.

Table 3: Relationship between knowledge score and socio-demographic characteristics of CHVs.

ANOVA Table	N=124	
	F	p=value
Knowledge score * Age group	4.40	0.014*
Knowledge score * community units	0.97	0.383
Knowledge score * Gender of CHV	1.54	0.217
Knowledge score * Marital status of CHV	2.35	0.076
Knowledge score * Education level of CHV	1.54	0.207
Knowledge score * Occupation of CHV	0.44	0.723
Knowledge score * Duration of working	9.22	0.003*

*Significant at p<0.05.

The majority of the participants (75.8%) were able to interpret correctly the chart of normal growth, 61.3% could interpret correctly the chart of faltered growth, but only a third (33.9%) of the participants were able to interpret correctly the chart of overweight growth. Nearly two-thirds (64.4%) of CHVs were able to explain correctly the causes of faltered growth in a child while only 35.6% were able to explain the causes of overweight in a child. Generally, CHVs' mean knowledge was 6.307±3.077 (Table 2), which falls within average knowledge category of 5-8 points.

Relationship between knowledge score and socio-demographic characteristics

ANOVA analysis was conducted to determine the socio-demographic characteristics of the participants and their knowledge score on GMP. Statistically significant association was identified between participants' knowledge score and: age group (p=0.014), and duration of working (p=0.003) (Table 3).

Community health volunteers' attitudes towards GMP

In both initial and follow-up trainings, less than half (45.2%) of CHVs believed that the trainings had been helpful in conducting GMP activities, while 4.0% of the respondents were not sure if the trainings had an impact on their GMP activities (Table 4). Lack of opportunities for continuous update or refresher trainings and counselling cards materials were the most common reasons for those with negative attitudes. According to (FGD_1, P_3, 2016), *"Since the last time we had that initial training after being recruited, we have never been called for any other training; we do not even know if there are new updates or not"*. Another participant in the FGD reported, *"We wish we had cards or brochures with pictures to use them in educating mothers on how to correctly feed their children". (FGD_3, P_7, 2016.*

The majority (58.9%) of the participants agreed that GMP activities did not interfere with their personal duties. However, household visits in some of the areas involved walking long distances, due to the vastness of the areas and by the time CHVs return to their homes it was too late or they were too exhausted to attend their errands. One of the participant in the FGD reported, *"Some of the households are far apart; you can walk for more than two hours before you get to the next household. So when you get back home, you are too tired to look after your family. We wish we had some means of transport". (FGD_2, P_1, 2016).*

More than two-thirds (68.5%) and nearly three-quarters (72.6%) of the participants agreed they had a good relationships with CHEWs and health facilities in-charge respectively. Lack of support during household visits, referrals, and acknowledgment of their efforts in conducting GMP were the main reasons for those with different opinions towards CHEWs and health facilities in-charge. However, 91% of the participants agreed that children were benefitting from their GMP activities.

Overall, more than three-quarters (76.6%) of participants attained a positive attitude score with mean attitudes score of 7.443 ±2.372, which was within the positive attitude category of 6-10 points.

Relationship between attitude score and socio-demographic characteristics

Using ANOVA analysis, a statistically significant relationship was identified between participants' attitudes score and education level (p=0.022). Other relationship between attitudes score and socio-

Table 5: Relationship between attitudes score and socio-demographic characteristics of CHVs.

ANOVA Table	N=124	
	F	p=value
Attitude score * Age category	0.42	0.658
Attitude score * community unit	1.40	0.251
Attitude score * Gender of CHV	0.01	0.908
Attitude score * Marital status of CHV	1.74	0.163
Attitude score * Education level of CHV	3.32	0.022*
Attitude score * Occupation of CHV	0.77	0.514
Attitude score * Duration of working	0.69	0.407

*Significant at p<0.05.

Table 4: Community health volunteers' attitudes towards GMP.

		N=124		
Aspects of Attitude		Agree n (%)	Don't know n (%)	Disagree n (%)
Opinion that trainings/mentorship has been helpful		56(45.2)	5 (4.0)	63(50. 0)
Opinion that GMP do not interfere with personal duties		73(58.9)	16 (12.9)	35(28.2)
Opinion that working relationship with CHEW/supervisor is good		85(68.5)	25(20.2)	14(11.3)
Opinion that working relationship with health facility in-charge is good		90(72.6)	27(21.8)	7(5.6)
Opinion that children benefit from own GMP activities		113(91.1)	10(8.1)	1(0.8)
Attitude score				
Mean	Std. Deviation			
7.444	2.373			
Negative attitude (0-5)		29 (23.4)		
Positive attitude (6-10)		95(76.6)		

demographic characteristics were not statistically significant (Table 5).

Community health volunteers' self-reported practices on GMP

Conducting monthly growth promotion for each child was reported by less than half (43.5%) of the participants. Lack of incentives and vastness of the area were mentioned as the main challenges to monthly GMP by CHVs. A participant in the FGDs reported, *"We are not given something for lunch or transport, even though we are volunteers, this leads to some of us dropping out or feeling demoralized to conduct GMP,"* (FGD_3, P_6, 2016).

For a child growing unwell or with health problem, 70.2% advice mothers or caregivers to seek healthcare services, two-thirds (68.6%) advice mothers on appropriate feeding. And only 10.7% of the participants reported to be advising mothers or caregivers to use ORS when the child has diarrhoea (Table 6). For a child growing well, more than half (58.9%) of the participants inquired and emphasized on immunization, 42.7% inquired and emphasized on monthly growth monitoring (weight measurement) in the health facility, and nearly half (47.6%) of the participants inquired and emphasized on optimal complementary feeding.

Relationship between the reported GMP practices and socio-demographic characteristics

Chi-square analysis was carried out to determine the relationship between socio-demographic characteristics and reported GMP practices by the respondents. Statistically significant relationship was identified between the age group and: Inquiring and emphasizing on monthly GMP (p=0.014), and inquiring and emphasizing on immunization (p=0.000) (Table 7). Statistically significant relationship was also identified between community health unit (CHU) and: Inquiring and emphasizing on monthly GMP (p=0.002); advising on appropriate feeding (p=0.002); advising on seeking health care (p=0.000); advice on Vitamin A supplementation (p=0.033);

Table 6: Community health volunteers' reported practices on GMP.

Reported practices	N= 124	
	n	%
Conducting growth monitoring and promotion every month for each child		
Yes	54	43.5
No	70	56.5
Advice to a child who is growing unwell or is sick* (N=121)		
Advice on appropriate feeding (breastmilk and complementary foods)	83	68.6
Advice on seeking health care	85	70.2
Advice on use of ORS for a child with diarrhoea	13	10.7
Inquiring and emphasizing on key messages for a child who is growing well*		
Praise the mother/caregiver or the family	107	86.3
Inquire and emphasize on monthly growth monitoring	53	42.7
Inquire and emphasize on immunization	73	58.9
Inquire and emphasize on Vitamin A supplementation	54	43.5
Inquire and emphasize on optimal breastfeeding	51	41.1
Inquire and emphasize on optimal complementary feeding	59	47.6
Inquire and emphasize on good hygiene and sanitation practices	55	44.4
Inquire and emphasize on use of LLITN	19	15.3

*Multiple responses.

Table 7: Relationship between age group and reported GMP practices by CHVs.

Age of CHVs in completed years	N=124			
	Yes (n)	No (n)	Fischer exact test statistics (F)	p= value
Inquire and emphasize on monthly GMP				
≤34	13	9	8.48	0.014*
35-65	39	51		
≥66	1	11		
Inquire and emphasize on immunization				
≤34	18	4	17.65	0.000*
35-65	54	36		
≥66	1	11		

*Significant at p<0.05

Table 8: Relationship between Community Health Units and reported GMP practices by CHVs.

Community health unit (CHU)	N=124			
	Yes (n)	No (n)	Fischer exact test statistics (F)	p= value
Inquire and emphasize on monthly GMP				
Kanyekini	25	17	12.36	0.002*
Kea	18	18		
Nzeluni	11	35		
Advice on appropriate feeding				
Kanyekini	26	16	12.12	0.002*
Kea	18	18		
Nzeluni	39	7		
Advice on seeking health care				
Kanyekini	33	9	17.71	0.000*
Kea	31	5		
Nzeluni	21	25		
Advice on Vitamin A supplementation				
Kanyekini	17	25	6.81	0.033*
Kea	22	14		
Nzeluni	15	31		
Inquire and emphasize on breastfeeding				
Kanyekini	27	15	15.18	0.000*
Kea	13	23		
Nzeluni	11	35		
Inquire and emphasize on complementary feeding				
Kanyekini	29	13	12.38	0.02*
Kea	15	21		
Nzeluni	15	31		
Inquire and emphasize on good hygiene and sanitation				
Kanyekini	23	19	6.10	0.045*
Kea	10	26		
Nzeluni	22	24		
Inquire and emphasize on use of LLITN				
Kanyekini	14	28	14.14	0.001*
Kea	2	34		
Nzeluni	3	43		

*Significant at p<0.05.

Table 9: Relationship between education level and reported GMP practices by CHVs.

Education level of CHVs	N=124			
	Yes (n)	No (n)	Fischer exact test statistics (F)	p= value
Inquire and emphasize on monthly GMP				
Pre-school	0	6	10.35	0.012*
Primary/basic	29	46		
Secondary	22	14		
Post-secondary	2	5		
Inquire and emphasize on immunization				
Pre-school	1	5	7.73	0.041*
Primary/basic	41	34		
Secondary	26	10		
Post-secondary	5	2		
Advice on Vitamin A supplementation				
Pre-school	2	4	15.20	0.001*
Primary/basic	23	52		
Secondary	24	12		
Post-secondary	5	2		
Inquire and emphasize on breastfeeding				
Pre-school	0	6	7.46	0.048*
Primary/basic	29	46		
Secondary	17	19		
Post-secondary	5	2		

*Significant at p<0.05.

inquiring and emphasizing on breastfeeding (p=0.000); inquiring and emphasizing on complementary feeding (p=0.02); inquiring and emphasizing on good hygiene and sanitation (p=0.045); and inquiring and emphasize on use of LLITN (p=0.001) (Table 8).

A statistically significant association was identified between respondents' level of education and; inquiring and emphasizing on monthly GMP (p=0.012); inquiring and emphasizing on immunization (p=0.041); advising on Vitamin A supplementation (p=0.001); and inquiring and emphasizing on breastfeeding (p=0.048) (Table 9).

Discussion

Growth monitoring and promotion is a preventive and promotive public health service to children and community health volunteers play a crucial role in improving access to this simple and cost effective intervention. To the best of our knowledge, this is the first study in Kenya focusing CHVs' knowledge, attitudes, and their practices towards GMP in the current Kenya's community health strategy policy. The study has clearly shown that most of the CHVs had received initial and follow-up trainings. These findings concurred with another study in Kenya where majority (83.3%) of CHWs had received initial and follow-up trainings [15]. Varied knowledge of CHVs on different aspects of GMP in this study was consistent with those of Faber [16] in Kwa-Zulu-Natal, and Hurtado [17] in Guatemala where the knowledge of volunteers varied among the nutrition topics asked.

The Mother-Child Health Booklet is a tool and a job aid made to be used in child's growth monitoring and promotion [13]. Nevertheless, the study has demonstrated that a large proportion of CHVs were aware of using either the mother or the family member when conducting GMP as compared to those who knew about mother-child health booklet. The study has also established that nearly three-quarters of CHVs were able to locate weight for age chart from the booklet, contrary to a study in Lilongwe of Malawi where majority of the Health Surveillance Assistances had inadequate knowledge of the main content in the health booklets, also called registers [18]. Contrary to the study in Lilongwe-Malawi, where CHWs were made to record information in the registers, CHVs in Kenya do not measure the weight or record it in the booklet. As per the community health strategy in Kenya, the process is done at the health facility.

On the ability to interpret growth chart for the faltered growth, the results of the study differed with other studies in Kwale of Kenya and Kwa-Zulu-Natal of South Africa where more than half of volunteers were unable to interpret growth curves [15,16]. The findings in the current study were expected since most of emphasizes during trainings of CHVs has been on how to identify a child losing weight. The ability to explain possible causes of faltered growth were also similar with that of Kwale in Kenya where CHWs identified sickness, inadequate feeding and lack of care as the main reasons for faltered growth [15]. It was expected that CHVs in the current study will be knowledgeable enough to interpret charts for both normal growth, overweight and underweight because growth promotion is applied for all outcomes of growth monitoring. The socio-demographic factors of CHVs associated with their GMP knowledge were age and duration of working. Association between knowledge and working duration was similar to other studies [19]. The relationship between knowledge and age could be attributed to long term experience and exposure in child feeding and health care seeking practices, while that of duration of working could be attributed to exposure in initial and follow-ups trainings.

In this study, the positive attitudes by the CHVs towards growth monitoring and promotion are consistent with a study in Lilogwe-Malawi where CHWs appreciated the programme for the increased coverage of the child welfare services [18]. The perception of CHVs on trainings in the current study was supported by the findings in Kwale-Kenya and in Kwa-Zulu-Natal where most volunteers were happy with the skills received during training to perform GMP [15, 16]. The negative attitudes towards trainings in the current study attributed to the short period of trainings and lack of counselling cards or brochures have been reported in other studies [4, 15]. Though most of the CHVs agreed that GMP activities did not interfere with their own activities, CHVs were demotivated by long distance walk due to vastness of the area, similar challenges have also been mentioned in other studies [4, 18, 20].

Positive attitudes by CHVs towards the CHEWs and health workers in the current study concurred to that of Haq in Pakistan [20] where most of the CHWs valued the health department. The positive attitudes towards growth promotion activities was expected since the study has revealed that majority of the CHVs advised mothers on seeking healthcare services and on appropriate feeding practices. Education level of the CHVs was found to be significantly associated with attitudes score. Similar to other findings, CHWs' high level of education appeared to be associated with job satisfaction (19). Association between CHVs' attitudes and education level could be attributed to the need to adverse career.

Most of the CHVs were not conducting growth promotion activities monthly and this differed with studies in Ethiopia where

mothers had monthly contact with CHWs [21-22]. The findings were expected since most CHVs experienced lack of transport for the distant households. This study has demonstrated that most CHVs conducted growth promotion for a sick child or a child with faltering growth. The findings are consistent with studies in Ghana and Uganda where most of the community growth promoters were identifying and referring sick children and those with poor weight gain to health facilities [2, 23]. In the current study, the findings of GMP practices by CHVs were those reported, as opposed to findings by Muyeti [23] where GMP practices were those observed during counselling sessions. Majority of CHVs provide advice to a sick or poorly growing child than those children growing well. Similar findings were reported by Muyeti [23] in Uganda where community growth promoters had more attention to children with faltering weight than those children growing well. The findings where CHVs identified and referred children for healthcare services concurred with Patience [2] in Ghana and Selamawit [21] in Ethiopia where health workers appreciated community-based growth promoters' roles in tracing defaulters of immunization, early identification, and referral of malnourished children and community mobilization for health education and other programs. Among the CHVs' socio-demographic characteristics, age, community health unit, and education level were associated with the GMP practices. The socio-demographic factors associated with GMP reported practices were age, type of CHU, and level of education. Association between performance of CHV with their age and location of CHU was similar to other studies [24]. The relationship between the type of CHU and performance of CHVs could be attributed to variation in the way settlements are scattered across the three CHUs. Community health volunteers with high level of education performed better than those in the lower level of education. These findings were consistency with previous studies [24,25], but contrary to a study in India [26].

The findings of this study add to the body of existing information on the community health volunteers' knowledge, attitudes, and practices towards GMP, and supplements challenges faced by CHVs during their routine activities in GMP. Such challenges need to be addressed in order to strengthen community growth monitoring and promotion under the community health strategy, for the achievement of universal healthcare access.

Conclusion

Community Health Volunteers knowledge towards GMP is average while their attitudes is positive, and their practices were varied among the GMP aspects. The age of CHV, type of community health unit, and level of education influence the knowledge, attitudes and practices of CHVs towards GMP. Challenges faced by Community Health Volunteers were lack of means of transport to access households far from their homes, lack of counselling cards or brochures, and lack of incentives, as well as insufficient continuous trainings to motivate and retain CHVs. The study has established level of knowledge, attitudes, and practices of CHVs, as well as relationship of their socio-demographic factors and their knowledge, attitudes and practices towards GMP in Mwingi West of Kitui County, Kenya. However, this was a cross-section study with small sample size, comparison and generalization of findings to whole CHVs in Kenya can only be done with caution.

Recommendation

Policy

There is need to review the Countries' Community Health Strategies and policies to address knowledge and skills toward GMP, incentives and support during their routine GMP activities.

Practices

There is urgent need to strengthen the existing community health programmes in order to improve CHVs' performance towards: interpretation of growth charts; identification of immunization and Vitamin A supplementation status for referral to nearest health facility or integrated health and nutrition outreaches; and counselling and negotiation skills on appropriate feeding and care for the sick child. Selection of CHVs should take into consideration of their age and level of education. Community Health Volunteers also need individualised support during their routine GMP activities.

Research

The authors recommend further study to investigate the association between GMP practices by mothers/caregivers and community-based GMP activities by CHVs. Further study taking a large sample size of CHVs and correlation of the variables is also recommended.

Declaration

Ethical approval and consent to participate

Approval to conduct the study was sought from Kenyatta University's graduate school and the Kenyatta University Ethical Review Committee (KUERC). Research permit was obtained from the National Commission for Science, Technology, and Innovation (NACOSTI). Authority to conduct the study in the study area was obtained from the Sub-county Ministry of Health authorities. Informed voluntary consent was sought from all study participants. Participants' confidentiality during the study was assured by use of codes as identification rather than names. There were no ingestions or exposure risks associated with the study.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request

Authors' contribution

MK conceptualised the idea of the study, collected the data, analysed and interpreted the data. MK drafted the manuscript. JK and IAO gave substantial contribution and support in the conceptualisation and design of the study, data analysis and interpretation. JK and IAO revised the manuscript and gave approval for the final version to be published.

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