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Measuring readiness of CHPS zones to deliver maternal and child nutrition services in the Jirapa municipality in Northern Ghana

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Research Article

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Abstract

Background

Measuring the readiness of Community-based Health Planning and Services (CHPS) zones to deliver maternal and child nutrition services is key in ensuring successful implementation of essential nutrition interventions for women and children at the facility and community levels. This study measured the readiness of CHPS zones to deliver maternal and child nutrition services in Northern Ghana so as to provide valuable information on the performance of key domains for action to be taken by policy makers and stakeholders.

Methods

This was a health facility survey of all 22 CHPS zones with compounds within the Jirapa municipality. Based on a modified semi-structured questionnaire adopted from the Facility-Based Nutrition Readiness and Delivery of Maternal and Child Nutrition Services using Service Provision Assessment Surveys, an overall mean maternal and child nutritional service readiness score was computed using six domains of maternal and child nutrition service readiness namely staff training, supervision and monitoring, essential medicines, functional basic equipment/diagnostic capacity, supplies and type of service delivery. Data analysis was performed using Statistical Package for Social Sciences version 22. Descriptive statistics were used to summarize the distribution of tracer indicators and the mean percentage scores under each domain of maternal and child nutrition service readiness computed.

Results

An overall mean maternal and child nutritional service readiness index of 63% for CHPS zones in the Jirapa municipality was computed. Domains such as functional basic equipment/diagnostic capacity, type of service delivery, and supervision and monitoring recorded high mean percentage scores of 93%, 88% and 80% respectively whilst the essential medicine and staff training domains had low mean percentage scores of 45% and 14% respectively.

Conclusion

The study computed an overall mean maternal and child nutrition service readiness score for the Jirapa municipality which is ranked as not a good score. The staff training and essential medicines domains were found to be underperforming thereby requiring urgent attention and improvement. We recommend that staff training and the provision of essential medicines for maternal and child nutrition services be improved by the Jirapa Municipal Health Directorate and relevant stakeholders at the CHPS zone level.

Background

The need for low- and middle-income countries (LMICs) to improve maternal and child nutrition is gaining global attention as countries edge closer to achieving the Sustainable Development Goals (SDG) by 2030 [1-4]. Most countries implement essential nutrition interventions that target women and children, through facility and community-based services as part of a broader health system structure to address the immediate causes of malnutrition [5, 6]. Essential nutrition interventions for women include iron and folic acid supplementation and calcium and other micronutrient supplements as part of routine antenatal care (ANC) visits, and counseling on maternal dietary practices whereas interventions for children include counseling on infant and young child feeding , micronutrient supplementation (iron, vitamin A, zinc), and growth monitoring services [5, 6].

The role of primary health care (PHC) in ensuring successful implementation of essential nutrition interventions for women and children at the facility and community levels cannot be overemphasized. Ghana's main strategy of achieving this is through the Community-based Health Planning and Services (CHPS) initiative which is a national policy that was implemented in 2001. The sole aim of this initiative is to provide essential PHC services and health education within demarcated geographic area of a 4 kilometre radius and between 4500-5000 persons or 750 households in densely populated areas often referred to as CHPS zones. These zones are staffed by resident community health officers (CHOs) and supported by community volunteers (CHVs) who operate from small service delivery posts called CHPS compounds. These zones are supervised by the heads of the sub-districts who ultimately report to the Municipal/District Health Management Teams (M/DHMTs) headed by the municipal/district directors of health services [1, 7, 8, 9].

Health service delivery mainly focuses on immediate results in most health systems and therefore meaningful representative measures for health service delivery are health facility readiness measures, which are often defined as the ability of the health system to deliver either general services or service-specific related services using indicators from health facility surveys [10]. In Ghana, two of such surveys [11, 12] have examined health system readiness for delivering reproductive health care services and another [13] examined how health workers were system ready to adapt to new technologies within the health system such as, introduction of e-records. Furthermore, two other studies measured system readiness at the PHC level through Service Availability and Readiness Assessment (SARA) [14] and Service Provision Assessment (SPA) [15] surveys using data from the Performance Monitoring and Accountability 2020 program (PMA2020) and the 2010 Ghana Emergency Obstetric and Newborn Care (EmONC) survey published by the Ghanaian Ministry of Health (MoH) respectively. Although these two studies included some maternal and child nutrition indicators, they fell short of capturing the wide spectrum of maternal and child nutrition services in Ghana. Till date, very little information exists on the readiness of the PHC system especially at the community level on delivering maternal and child nutrition care services in Ghana.

Notwithstanding some interventions aimed at improving maternal and child nutrition services in the Upper West Region of Ghana such as: Maternal and Child Health and Nutrition Improvement Project (MCHNP) [16]; Maternal and Child Survival Program Ghana (MCSP) [17]; and adopting healthy maternal and child survival practices in rural Ghana [18], maternal anemia and child stunting are still high in the region [19]. Records from both the Municipal Health Directorate (MHD) in Jirapa [1, 20] and the Regional Health Directorate [21] of the Ghana Health Service (GHS) indicates that the Jirapa municipality has one of the worse maternal and child nutritional status in the Upper West Region in terms of anemia in pregnancy and child stunting.

Considering the invaluable role that CHPS zones are supposed to play towards ensuring effective maternal and child nutrition services, there is the need to measure their level of readiness to be able to deliver such services. The aim of this study was therefore to measure the readiness of CHPS zones to deliver maternal and child nutrition services in the Jirapa municipality with the hope that this would provide stakeholders with valuable information on the performance of key domains within this level of the PHC system to enable them decide on which critical areas to take action. Since Ghana's roadmap for attaining universal health coverage (UHC) 2020-203 talks about paying adequate attention to maternal and child nutrition at the primary level [22], it is our hope that the findings of this study would serve as a basis for strengthening the integration of services related to maternal and child nutrition into the PHC system.

Materials and Methods

Study settings

The Jirapa municipality is located in the north western part of the Upper West Region of Ghana with Jirapa as its capital. Jirapa is predominantly peri-urban whilst the rest of the municipality is mainly rural. Data from the Jirapa Municipal Health

Directorate (MHD) indicates that as at 2019, the municipality had 137 communities and a projected population of 104,720 people at a growth rate of 1.9 [20].

The PHC system of the municipality comprises of 1 municipal hospital located in the capital and serves as the main referral point; 1 polyclinic and 7 health centres at the sub-district level; and 36 CHPS zones at the community level. The CHPS zones consist of 22 zones with compounds and 14 without compounds operating as mobile facilities with CHOs and resources from some of those with compounds [20]. The location of all CHPS zones in the municipality is shown in (Fig. 1).

Study design

This was a health facility survey of all the 22 CHPS zones with compounds within the Jirapa municipality carried out from 5 to 30 April, 2019. CHPS zones without compounds were invariably covered since they are mobile services usually from those with compounds.

Data collection and tools

One of the investigative team members carried out a face-to-face interview of the heads or in-charges of all CHPS zones with compounds. The survey was conducted using a modified (to fit our local context) semi-structured questionnaire adopted from the Facility-Based Nutrition Readiness and Delivery of Maternal and Child Nutrition Services using Service Provision Assessment Surveys [5]. The questionnaire was divided into four sections comprising of staff training; supervision and monitoring; essential medicines, functional equipment, diagnostic capacity and supplies; and service delivery (see supplementary file).

Data analysis

Data analysis was performed using Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics were used to summarize the distribution of tracer indicators. We generated six domains of maternal and child nutrition service readiness namely staff training, supervision and monitoring, essential medicines, functional basic equipment/diagnostic capacity, supplies and type of service delivery. Each domain has a number of tracer indicators as shown in Table 1.

Table 1 Domains and tracer indicators for maternal and child nutritional service readiness

Domain	Tracer indicators, items or services	Domain score (n=number of tracer items available)
a. Staff training (last 2 years)	Infant and young child feeding, KMC, maternal and child nutrition, community based management of acute malnutrition, nutritional status assessment, growth monitoring, community volunteers on maternal and child nutrition	(n/7) x 100
b. Supervision and Monitoring	Activity plan for health promotion, basic equipment/ supplies, data quality	(n/3) x 100
c. Essential medicines	Folic acid tablet, iron tablet, combined iron and folic acid tablet, zinc sulphate tablet, vitamin A, oral rehydration salt	(n/6) x 100
d. Functional basic equipment/diagnostic capacity	Adult weighing scale, child weighing scale, infant weighing scale, measuring tape, HemoCue Hb 201^{+}/Hb meter (Hb testing), Mid Upper Arm Circumference tapes	(n/6) x 100
e. Supplies	Guidelines for infant and young child feeding counseling, national guidelines for growth monitoring, availability of growth charts	(n/3) x 100
f. Type of service delivery	Nutritional education and counseling for pregnant women, Infant and young child feeding education, diagnose and treat child malnutrition, provide infant and young child feeding counseling for prevention of Mother-to-Child-Transmission of HIV, provide nutritional counseling for HIV positive pregnant women and their infants, immediate and exclusive breastfeeding, KMC for premature babies	(n/7) x 100
Maternal and child nutritional service readiness index		Mean score of the six domains: (a+b+c+d+e+f)/6

KMC: Kangaroo mother care, Hb: Hemoglobin

The availability of each tracer indicator was coded and captured as “1” if it was available and functioning (basic equipment) or “0” if otherwise. The total score for each domain was calculated based on the mean availability of individual items and expressed as a percentage for that domain. The mean of all six domain scores was then calculated to represent the maternal and child nutrition readiness index and expressed as a percentage for all CHPS zones.

Results

Background characteristics of tracer indicators

This was a census of all 22 CHPS zones with compounds within the Jirapa municipality of the Upper West Region. The distribution of tracer indicators under the various domains is indicated in table 2. Training of staff on maternal and child nutrition services in the last two years was generally low with training on nutritional status assessment being as low as 4.5%. Training of community volunteers on maternal and child nutrition issues was the highest (26.3%) under the staff training domain. Supervision and monitoring of basic equipment/supplies and data quality was quite high (>90.0%) whilst that of activity plans for health promotion was just above 50.0%.

The availability of essential medicines ranged from 0% for oral rehydration salt to about 77% for combined iron and folic acid tablet. None (0%) of the CHPS zones had the capacity to test for anemia during pregnancy. However, the availability of functional basic equipment was generally high with all (100%) the CHPS zones having measuring tape/stadiometer and mid upper arm circumference tapes for diagnosing child malnutrition. Availability of some supplies such as growth charts for growth monitoring was very low (4.5%). With the exception of providing kangaroo mother care (KMC) services for

premature babies which was low (40.9%), the provision of other maternal and child nutritional services was generally high ranging from 77.3% to 100%.

Table 2 Distribution of tracer indicators for measuring readiness of maternal and child nutrition service

Domain	Tracer indicators, items or services	Percentage (%)
Staff training (last 2 years)	Infant and young child feeding	13.6
	KMC	9.1
	Maternal and child nutrition	13.6
	Community based management of acute malnutrition	13.6
	Nutritional status assessment	4.5
	Growth monitoring	18.2
	Community volunteers on maternal and child nutrition	26.3
Supervision and Monitoring	Activity plan for health promotion	54.5
	Basic equipment/supplies	90.9
	Data quality	95.5
Essential medicines	Folic acid tablet	45.5
	Iron tablet	54.5
	Combined iron and folic acid tablet	77.3
	Zinc sulphate tablet	54.5
	Vitamin A	40.9
	Oral rehydration salt	0.0
Functional basic equipment/diagnostic capacity	Adult weighing scale	81.0
	Child weighing scale	90.9
	Measuring tape/stadiometer	100
	HemoCue Hb 201^{+}/Hb meter (Hb testing)	0.0
	Mid Upper Arm Circumference tapes	100
	Infant weighing scale	83.3
Supplies	Guidelines for infant and young child feeding counseling	90.9
	National guidelines for growth monitoring	72.7
	Availability of growth charts	4.5
Type of service delivery	Nutritional education and counseling for pregnant women	100
	Infant and young child feeding education	100
	Diagnose and treat child malnutrition	95.5
	Provide infant and young child feeding counseling for prevention of mother-to-child-transmission of HIV	100
	Provide nutritional counseling for HIV positive pregnant women and their infants	100
	Immediate and exclusive breastfeeding	77.3

	KMC for premature babies	40.9

KMC: Kangaroo mother care, Hb: hemoglobin

Components of maternal and child nutrition service readiness

We determined an overall mean maternal and child nutritional service readiness index of 63% for CHPS zones in the Jirapa municipality. Staff training in the past two years on maternal and child nutrition services was observed to have the least mean percentage score of 14%. Functional/diagnostic capacity recorded the highest (93%) mean score among all CHPS zones. The ability to diagnose anemia however, did not contribute to this score as none of the CHPS zones had the capacity to diagnose anemia. The mean percentage score of each domain of maternal and child nutrition service readiness is presented in Table 3.

Table 3 Mean percentage score under each domain of maternal and child nutrition service readiness for CHPS zones

Variable	Mean % score of CHPS zones (n=22)
Mean maternal and child nutritional service readiness score	63%
Staff training (last 2 years)	14%
Supervision and Monitoring	80%
Functional basic equipment/diagnostic capacity	93%
Supplies	56%
Essential medicines	45%
Type of service delivery	88%

CHPS: Community-based Health Planning and Services

Discussion

This study is arguably the first of its kind that has attempted to give a glimpse of Ghana's readiness to deliver maternal and child nutrition specific services at the community level since the implementation of the CHPS initiative over two decades ago. Furthermore, the use of standardized indicators from the Facility-Based Nutrition Readiness and Delivery of Maternal and Child Nutrition Services using Service Provision Assessment Surveys [5] by this current study serves as a basis for objectively assessing the readiness of rendering maternal and child nutrition specific services at the PHC level in general.

Although three approaches (simple additive, weighted additive or principal component analysis) have widely been used in calculating indices related to quality of maternal and child care and nutrition services [23-27], the weighted additive method is often recommended because it is easy to calculate and interpret [27]. An overall general readiness score of at least 70% for health facilities is considered to be generally good [28, 29]. Therefore comparing this to our mean overall readiness score of 63% indicates that CHPS zones within the Jirapa municipality generally do not have a good maternal and child nutrition service readiness. In Bangladesh, moderate levels (45%-65%) of facility readiness to provide nutrition interventions were found which is consistent with our findings. However in Senegal, a survey of primary health care facilities found a higher (69.5%) general primary care service readiness score for nutritionally at-risk infants under six months and their mothers [24] when compared to that of our study.

Staff training plays a significant role in improving the delivery of maternal and child nutrition services in developing countries. Evidence from some LMICs found training of staff to be the main contributor to higher service readiness scores in maternal nutrition interventions during ANC services [23]. Staff training in our study was very low and the least percentage contributor to the overall maternal and child nutritional service readiness score resulting in an overall low score. This finding further reaffirms the relative importance and need for staff training in order to ensure that our PHC system is ready to deliver a comprehensive package of maternal and child nutritional services. Contrary to our low finding of just 13.6% of staff receiving training in community based management of acute malnutrition in the past 2 years, staff training in malnutrition over the previous 3 years at PHC contact points in Senegal [24] was nearly three times (36%) more than that of our study. Whereas training on nutritional assessment was also very low in this present study, SPA surveys in Bangladesh, Haiti, Malawi, Nepal, Senegal and Tanzania indicated much higher proportions (ranging from 11.3% - 21.5%) of staff receiving recent training on nutritional assessment for pregnant women [5]. The relatively high proportion of CHVs being trained on maternal and child nutritional services could be an indication of improvement in these services at the community level provided that such trainings are actually being put into action. This is so because of the critical role of the CHVs in health service delivery which include: educating community members on healthy practices, translating health messages from the CHOs into local languages, encouraging pregnant women to attend ANC, promoting skilled deliveries, and sometimes escorting clients to health facilities for care [30, 31].

The Facility-Based Nutrition Readiness and Delivery of Maternal and Child Nutrition Services using Service Provision Assessment Surveys [5] do not have indicators for the supervision and monitoring of maternal and child nutrition services. However to ensure continuous quality health care delivery and data capture, the CHPS framework and policy has as part of its strategy and policy directive, the supervision and monitoring of some key activities such as activity plans for health promotion, basic equipment/supplies and data quality in each CHPS zone by both the sub-districts or M/DHMTs [7, 9]. Our study found this domain to be one of the main contributors to the overall maternal and child nutritional service readiness score thereby underscoring the relative importance of this domain in ensuring improved delivery of maternal and child nutrition services at the PHC level. We also think that managers of the health system at the PHC level and other relevant stakeholders can leverage on the influence of this domain on the overall nutrition score to ensure that the supervision and monitoring of key activities in each CHPS zone are also more maternal and child nutrition specific as well.

Availability of functioning basic equipment domain was the highest contributor to the overall service readiness score. This finding was consistent with an earlier study that assessed the general service readiness of PHC facilities in Ghana were the mean percentage score of basic equipment was found to be 92% in CHPS zones [14]. Whereas the availability of basic equipment especially adult weighing scale for delivering maternal nutrition services from some ten developing countries was found to be higher than that in this study, the availability of all other basic equipment especially pertaining to child nutrition services were low when compared to the findings in our study except in Senegal where 95.1% of facilities had infant scales [5]. However a more recent study in Senegal [24] found the availability of basic equipment at primary health facilities to be low (32.5%) as compared to our study. The nonexistence of anemia diagnostic capacity in this study is a true reflection of the general lack of anemia diagnosis at this level of health care in Ghana and often requiring CHOs to either rely on clinical evaluation of anemia or external laboratories for diagnostic services which increases the burden of an already overwhelmed health staff [32] and a huge financial burden for households.

The essential medicines domain was the second lowest contributor to the overall service readiness score but was however higher than earlier reported in Ghana were the percentage score of essential medicines at the CHPS level was almost 36% [14]. The difference could be due to the fact that our study was more nutrition specific and therefore used fewer (6) medicines as compared to the much more (20) medicines used in the previous study. This finding however does not only suggest the possibility of frequent drug stock outs or inadequate supply of essential medicines to CHPS zones as previously reported in Ghana [14], but also reflects what exists in the lower tiers of health care in other LMICs [33-36]. Regarding the availability of specific medicines for nutrition services, the combined tablet of iron and folic acid were found in most CHPS zones as compared to the single formulations of iron and folic acid tablets. Whereas the availability of iron

tablets alone in our study was lower as compared to that in Bangladesh and Haiti, much lower percentages were reported in Nepal, Malawi, Senegal, Tanzania and Mozambique [5, 37] when compared to our finding. The availability of zinc tablets in our study area was similar to that in Haiti and Senegal [5] but lower than that reported in Nepal, Malawi and Bangladesh [5]. However, our study reported a higher percentage of zinc tablets availability compared to that in Tanzania and Mozambique [37]. Less than 50% of CHPS zones had readily available vitamin A supplementation, a finding consistent with that in Malawi and Senegal [5]. However, other LMICs such as Bangladesh, Haiti, Nepal, Tanzania and Mozambique [5, 37] reported much higher vitamin A supplementation availability than was reported in our study. Due to the direct link between diarrhea and malnutrition in children [38] and the fact that all commercial oral hydration salts (ORS) contain 2%–3% carbohydrates which is sufficient to maintain nutritional status in the short term (24–48 h) until osmol overload in the gut is avoided [39], we make the argument that treating diarrhea through the use of oral hydration therapy serves as a good curative child health service. The non-availability of ORS at any of the CHPS zones therefore seems to suggest that diarrheal management at this level of care will be greatly compromised and posing as a risk for child malnutrition.

The availability of guidelines for infant and young child feeding counseling and growth monitoring were high in our study underscoring efforts made by the health system to improve maternal and child nutrition services at the PHC level. Our findings however contrast that of a facility-based survey in Senegal for infants with malnutrition in children less than six months where guidelines were found to be absent [24]. Availability of growth chats was extremely low (<5%) at this level of health care in our study area which is against the World Health Organization (WHO) child growth standard, which recommends that children's weight and height be plotted on the standard growth chart following a physical examination, as this can be a good predictor of dietary status and future disease risk when followed over time [40].

It is believed that when essential nutrition services are integrated into routine PHC services, especially in maternal, reproductive, newborn and child health services, they have the potential to greatly impact population health as good nutrition is a determinant of improved health outcomes [40]. In our study, the type of maternal and child nutrition services delivered as a package of general service delivery at this level of the PHC system accounted for the second highest contributor to the overall mean maternal and child nutritional service readiness score. There is overwhelming evidence to show that good quality nutrition counseling is effective in changing infant and child feeding practices in LMICs [41, 42, 43]. Whereas we recorded very high levels of maternal and child nutrition related counseling services delivered at the CHPS zones, these were only reported responses from study participants and not as direct observations made. Contrary to our high findings of nutrition and exclusive breastfeeding counseling services provided in this study, there were reported gaps in counseling pregnant women about diets and breastfeeding in public primary health care facilities in urban Bangladesh [44]. Similarly unlike our study, studies that observed counseling on breastfeeding and dietary advice from other LMICs revealed significant gaps in early/immediate breastfeeding and exclusive breastfeeding counseling services although anthropometric measurements of expectant mothers and children were often taken [40]. Furthermore contrary to what this study revealed that nutritional counseling for HIV positive pregnant women and their infants through prevention of mother-to-child transmission (PMTCT) services were provided at every zone, only 42.8% of all facilities across Mozambique promoted breastfeeding through PMTCT services [37]. Although a higher proportion of CHPS zones indicated their capacity to diagnose and treat child nutrition, most of their staff had not received recent trainings in this regard thereby limiting their capacity to deliver and apply current evidence based knowledge and skills in this area.

Health policy implications

The findings of this study provide some key policy insides for stakeholders along the maternal and child nutrition services value chain. First, this study can serve as a basis for the inclusion of key maternal and child nutrition indicators for future national representative surveys such as the demographic and health survey (DHS) in Ghana. This will enable policy makers assess the state of maternal and child nutrition services and which domains to pay more attention to. Secondly considering the importance of CHPS zones and the fact that they are underperforming when it comes to delivering maternal and child nutrition services in our study area, there is the need to prioritize its measurement across the entire

country as other districts could also be underperforming in delivering these services. Our findings also suggest that in order to achieve the policy directive (Policy directive 1) of the CHPS policy which includes nutrition education and counseling on good nutrition [9], there is the need to ensure regular and routine training of staff at this level in maternal and child nutrition specific related areas. This is even more relevant considering the fact newly qualified health personnel might not have received any practical training in nutrition related services. Finally it is important for all stakeholders involved in improving maternal and child nutrition services at the PHC level including the GHS to ensure that nutrition specific essential medicines are constantly stocked by CHPS zones. This can be achieved by including it as a mandatory item amongst the list of items under the supervision and monitoring domain to be performed by both the sub-districts and M/DHMTs.

Strengths and limitations

A major strength of this study was that it was a census of all facilities within the Jirapa municipality and therefore the findings were representative and reflected the readiness of CHPS zones deliver maternal and child nutrition services at this level of the PHC system in the municipality. Another important strength of this study was the use of standardized indicators from the Facility-Based Nutrition Readiness and Delivery of Maternal and Child Nutrition Services using Service Provision Assessment Surveys to construct an objective index rather than just measuring readiness by reporting percentage availability of key indicators alone. Furthermore, our study provided items or indicators on specific nutrition training topics which are common limitations in the SPA and SARA specific to nutrition services. Notwithstanding these strengths, our study had some limitations. First, our findings were based on responses from facility heads and not from direct observations which could have affected the outcome of our study. It is also important to note that since this survey was done within a short time frame (one month), significant changes could have occurred before the period of the survey therefore affecting the interpretation of the results especially considering the fact that some of the domains had fluid indicators. Additionally, the weighted additive method used in the computation of our readiness score assumed equal weights for all indicators. This is often not the case as some indicators might have had more weights than others during the construction of indices and therefore our readiness score needs to be interpreted within context.

Conclusion

This study is the first of its kind that has attempted to measure Ghana's readiness to deliver maternal and child nutrition specific services at the community level since the implementation of the CHPS initiative by using standardized and recommended indicators. The study found an overall mean maternal and child nutrition service readiness score of 63% for the Jirapa municipality which is ranked as not a good score. The staff training and essential medicines domains were found to be underperforming and thereby requiring urgent attention and improvement. Although most CHPS zones had basic equipment available for rendering maternal and child nutritional services, they all lacked the capacity to diagnose anemia. We recommend that the Jirapa Municipal Health Directorate and other relevant stakeholders place more emphasis on improving the staff training and essential medicine domains by organizing regular training for staff and regularly stocking essential medicines respectively at the CHPS zone level.

Abbreviations

ANC: Antenatal Care; CHPS: Community-based Health Planning and Services; CHO: Community Health Officer; CHV: Community Health Volunteer; M/DHMT: Municipal/District Health Management Team; DHS: Demographic and Health Survey; GHS: Ghana Health Service; EmONC: Ghana Emergency Obstetric and Newborn Care; KMC: Kangaroo mother care; LMIC: Low and Middle-Income Countries; MCHNP: Maternal and Child Health and Nutrition Improvement Project; MCSP: Maternal and Child Survival Program Ghana; MHD: Municipal Health Directorate; MoH: Ministry of Health; MHMT: Municipal Health Management Team; NNP: National Nutrition Policy; PMA2020: Performance Monitoring and Accountability 2020 program; PMTCT: Prevention of Mother-to-Child Transmission; SPA: Service Provision Assessment;

ORS: Oral Rehydration Salt; PHC: Primary Health Care; SARA: Service Availability and Readiness Assessment; SDG: Sustainable Development Goals; UHC: Universal Health Coverage; WHO: World Health Organization

Declarations

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Authors' contributions

DC conceived, designed, analyzed the data and drafted the initial manuscript. FXT conceived, designed, collected and analyzed the data and drafted the initial manuscript. SA analyzed the data, drafted the initial and final manuscripts.

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Availability of data and materials

All relevant data and information based on which conclusions are made can be found in this write up. More details of the raw data may be made available upon reasonable request from the corresponding author.

Ethics approval and consent to participate

The study protocol was reviewed and approved by the Kintampo Health Research Centre Institutional Ethics Committee (approval number KHRCIEC/: 2020-6) for the conduct study. Written permission was also sought from the Jirapa Municipal Health Directorate. Written informed consent was obtained from all participants themselves before the face-to-face interviews were held. All methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication

Not applicable.

Competing interests

The authors declare that there are no competing interests.

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Figures

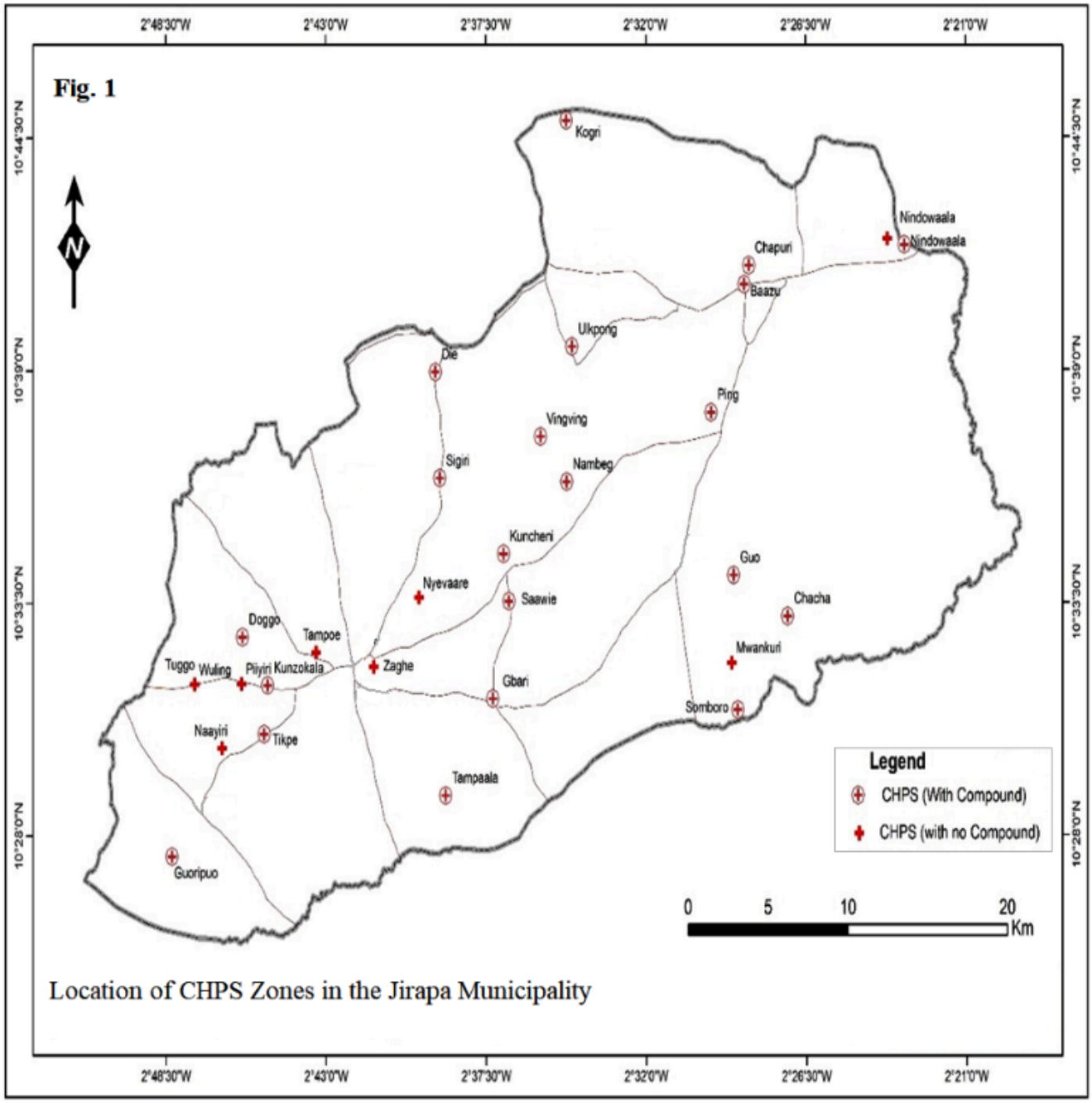


Figure 1

Map of Jirapa Municipality showing location of CHPS zones

CHPS (with no compound) are mobile health services provided from CHPS (with compound).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- CHPSQuestionnaireMeasuringreadinessofmaternalandchildnutrition.docx