RURAL AREA SCREENING PROGRAM

REPORT ON

SCREENING ACTIVITY AT KPENDUA IN THE SAVELUGU DISTRICT

CONDUCTED

FROM

DATA PRESENTATION AND ANALYSIS

This is a report on medical screening done at Kpendua in the Savelugu District. The report covers demography, chronic conditions, vital signs and other investigations, systemic review and physical examinations as well as special sonographic investigations or point of care ultrasound investigations. In all a total of 133 participants were screened and data taken from them. The data is shown in bar graphs, pie chart and tables and well as captured with inferential analysis.
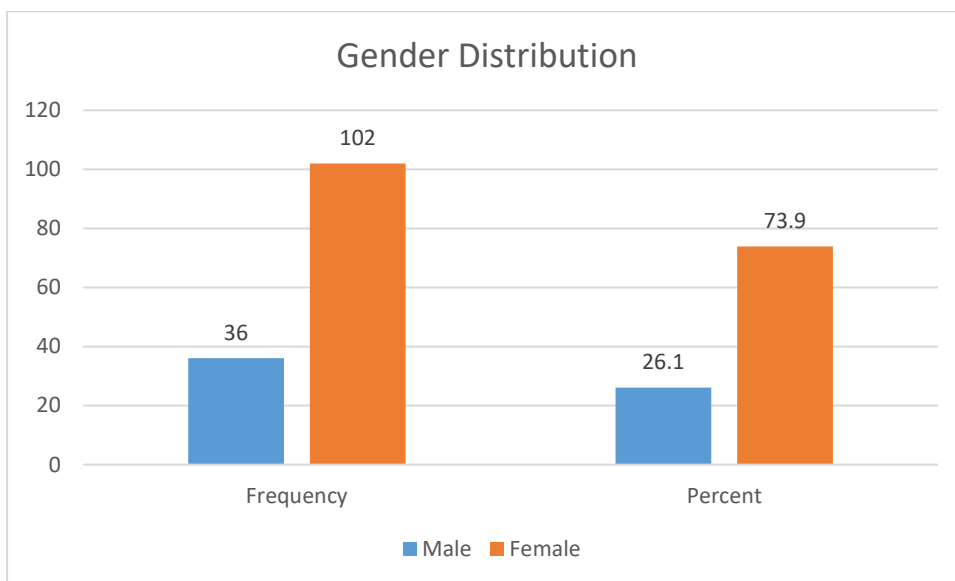
Demography of participants

Figure 1.1 Gender distribution of participants

Community member of Kpendua in the Savelugu District who participated in the outreach have their demography shown on table 1.1 above. Out of a total of 138(100%) community members who presented for health screening and basic treatment outreach, females were majority, 102 representing 73.9% while 36 were males and represented 26.1%.
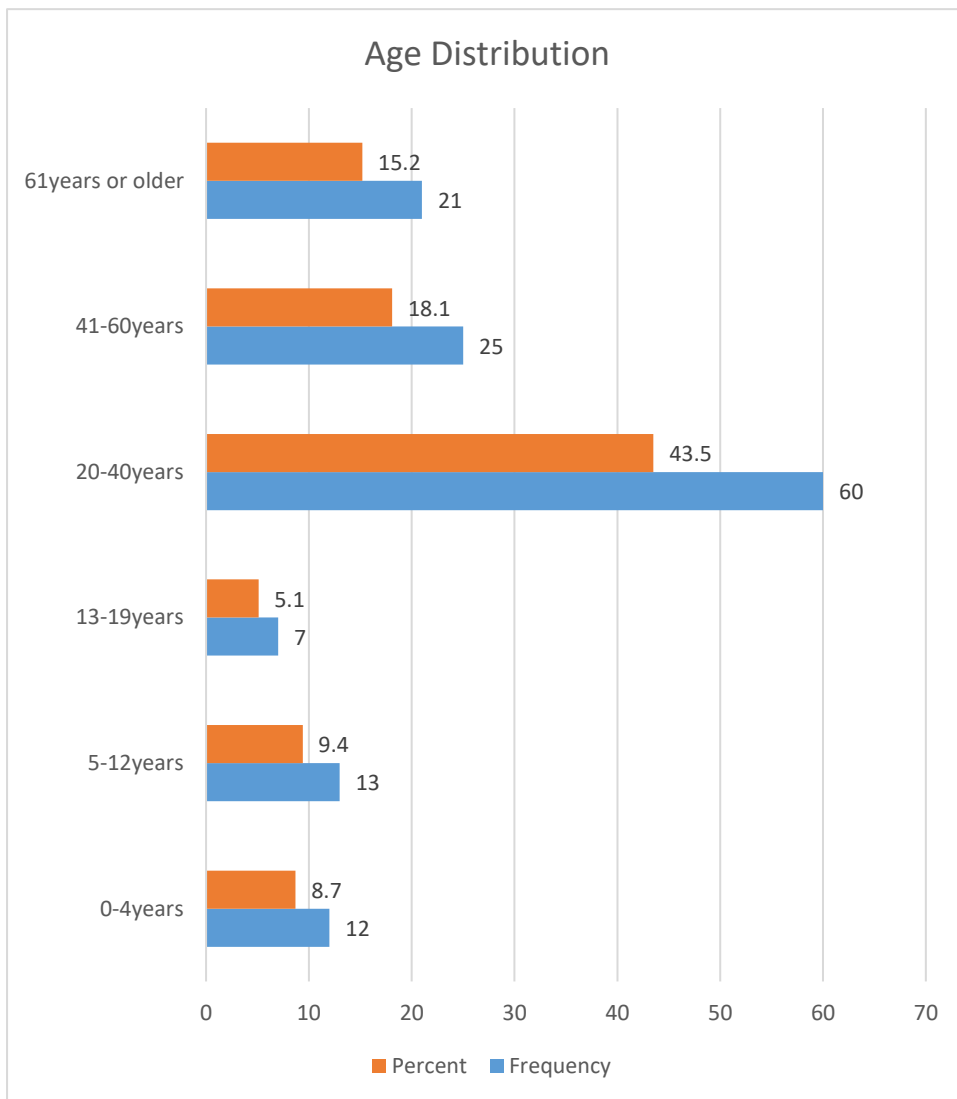
Figure 1.2 Age distribution of participants

Age distribution of participants ranged from 0-4years which was represented by 12(8.7%) of the participants, 5-12years by 13(9.4%), 13-19years also represented by 7(5.1%) of them. More of the participants were aged 41-60years and were 25(18.1%) while those aged 61years or older were 21(15.2%). Majority of the participants were within the 20-40years age bracket and were 60(43.5%). The age distribution depicts that majority of the community members were in their youthful ages and also shows the acceptance of health screening program by the youth and adults.
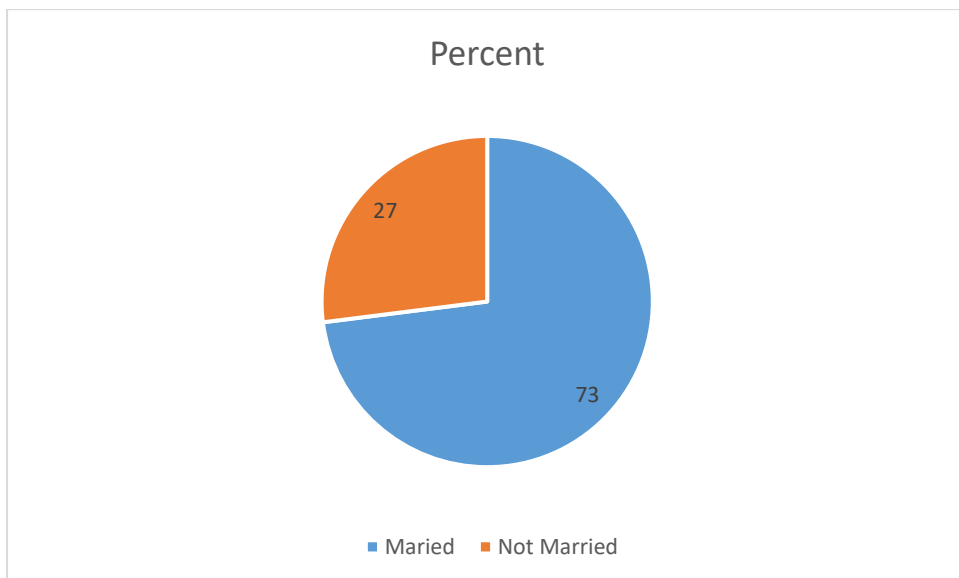
Figure 1.3 Marital status of adult participants

The marital statuses of participants reflected the age distribution as evident by few of them

who had not married being 31 (27%) and the rest 84(73%) had married.
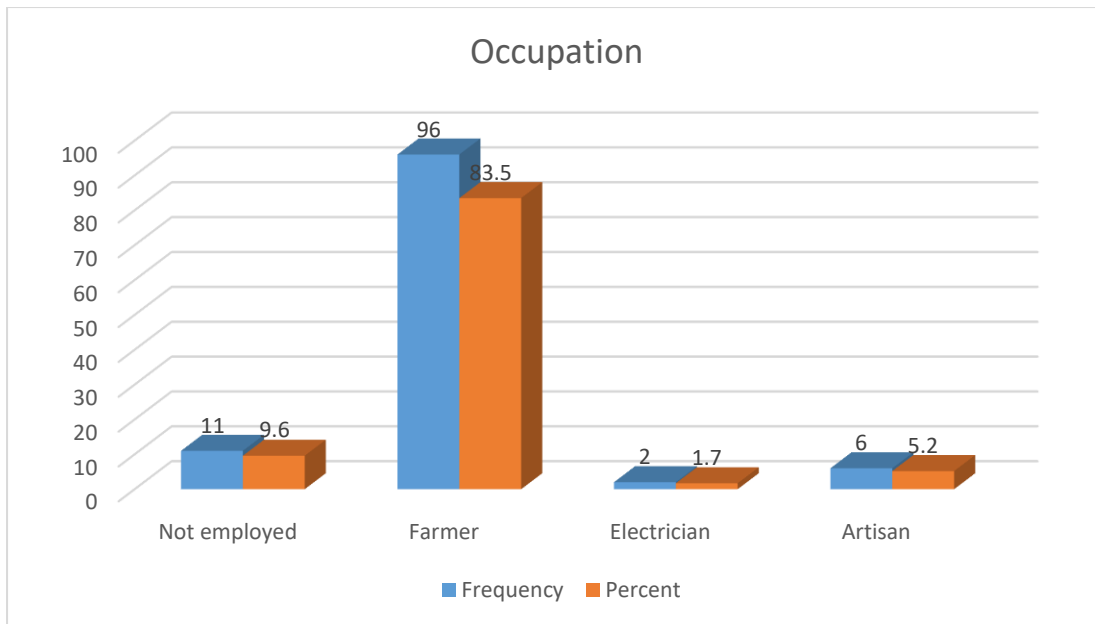
Figure 1.4 Occupation of adults participants

Occupational background also depicted he settlement as a farming one and majority, 96(83.5%) farmed, 6(5.2%) were into artisanship while 2(1.7%) were electricians. It was also found that 11(9.6%) were unemployed and probably were the kids that showed up.

Chronic conditions and history of chronic conditions

This section was to identify participants who had hypertension or diabetes mellitus or had family history of these conditions which is a good information that coupled with the signs they present can help in making effective medication decisions.

Table 1.1 Participants with chronic conditions and history of chronic condition

		Frequency	Percent
Diagnosis of chronic disease	Yes	11	9.6
	No	104	90.4
	Total	115	100.0
Family history of hypertension or hypotension	Yes	8	7.0
	No	107	93.0
	Total	115	100.0
Family history of diabetes	No	115	100.0
	Total	115	100.0

Field Data, 2022

Table 1.2 shows that among 115 patients who were probed for chronic diseases, 11 indicated they had and represented 9.6% while 104 of them also representing 90.4% did not have any chronic medical condition. Family history for hypertension was indicated by 8(7.0%) of them while none of them had family history of diabetes mellitus.

Findings of this study presents that history of hypertension and diabetes was low in the community. This could be due to their activity of occupation being farming mostly. The lack of a sedentary lifestyle might have contributed to a low history or family history of hypertension and no history of diabetes. It could also be due to under diagnosis of these conditions in the population.

Vital signs and other investigations

The basic enquiry into the health of an individual is to have a good idea of degree of effectiveness of homeostasis. These parameters were the body mass index that gave information on the health with regards to the level of fat an individual has built and had direct and indirect effect on hormonal, immunity and general health of the individual, blood pressure and pulse which give information about the cardiovascular system with associated renal and liver health. Temperature levels, which gives clue of the inner milieu of the body and uncovers a situation of infection or response to a diseased state. In addition to the vital signs, blood sugar levels was considered. A consideration of the blood sugar levels was vital in determining the diabetic status which could be hypoglycaemic or hyperglycaemic with their associated medical problems of nephropathy, retinopathy, maculopathy and infection.

Table 1.2 vital signs and other investigations

		Frequency	Percent
BMI	Under weight	15	12.9
	Normal	94	81.0
	Over weight	7	6.0
	Total	116	100.0
Blood pressure	Hypotension	44	38.6
	Normal	51	44.7
	Hypertensive state	19	16.7
	Total	114	100.0
Pulse rate ranges	Bradycardia	9	7.9
	Normal	103	90.4
	Tachycardia	2	1.8
	Total	114	100.0
Temperature ranges	Normal	107	94.0
	Higher Temperature	7	6.0
Random blood sugar	Normal levels	109	95.6
	High sugar levels	5	4.4
	Total	114	100.0
Hepatitis B status	HPV positive	5	4.3
	HPV negative	111	95.7
	Total	116	100.0

Field Data, 2022

Table 1.1 presents majority 94(81.0%) of the participants were of normal body mass index, 15(12.9%) were underweight while 7(6.0%) were overweight. Blood pressure presented few of the participants being 19(16.7%) having hypertension, 44(38.6%) had lower blood pressures than normal and more than half of them, 51(44.7%) recorded normal blood pressures. Pulse rate also presented 2(1.8%) being tachycardic which means a faster pulse rate and 9(7/9%) being bradycardic which also means slower pulse rate. It was however found that majority of

the participants, being 103(90.4%) had normal pulse rate. These three medical parameters considered had a strong bearing on the level of activity of the community members or participants in this study. The lack of sedentary lifestyle might have had positive impact on their health and led majority of the participants with normal BMI, normal blood pressure and normal pulse rate.

Temperature were mainly within the normal range except for 6 children who had a malaria and were treated after a rapid malaria test was done and they tested positive.

The sugar levels of the participants which were taken randomly presented almost all of them, 109(95.6%) having normal sugar levels. This confirms with the identification of not chronic condition of diabetes in the participants who partook in the screening exercise.

Hepatitis B status was investigated as it was becoming a serious public health concern and has seriously deleterious health impact on people it infect who do not attain prompt treatment. Among the participants, HPV tested positive in 5 of the participants representing 4.3% while 111 of them representing 95.7% tested negative. The participants who were hepatitis B positive were referred for treatment at the Salelugu District Hospital.

Systemic review

This section of the report deals with the systemic review for cardiovascular, respiratory, gastrointestinal, central Nervous system, genitourinary system, obstetrics gynaecology and breast symptoms, ocular symptoms, musculoskeletal and integumentary system symptoms. This was to attain a good coverage of the participants` health status with regards to the different systems. The findings from this systemic review informed a directed physical examination or ultrasonography investigations where necessary.

Table 1.3 systemic review

System		Frequency	Percent
Cardiovascular system symptoms	Presenting with symptoms	14	10.8
	No symptoms	116	89.2
	Total	130	100.0
Respiratory system symptoms	Presenting with symptoms	27	20.3
	No symptoms	106	79.7
	Total	133	100.0
Gastrointestinal system symptoms	Presenting with symptoms	33	25.2
	No symptoms	98	74.8
	Total	131	100.0
Central Nervous system	Presenting with symptoms	34	26.2
	No symptoms	96	73.8
	Total	130	100.0
Genitourinary system symptoms	Presenting with symptoms	14	10.8
	No symptoms	116	89.2
	Total	130	100.0
Obstetrics Gynaecology and Breast symptoms	Presenting with symptoms	9	6.9
	No symptoms	121	93.1
	Total	130	100.0
Ocular symptoms	Presenting with symptoms	5	3.8
	No symptoms	125	96.2
	Total	130	100.0
Musculoskeletal system symptoms	Presenting with symptoms	39	30.2
	No symptoms	90	69.8
	Total	129	100.0
Integumentary system symptoms	Presenting with symptoms	9	6.9
	No symptoms	121	93.1
	Total	130	100.0

Field Data, 2022

Cardiovascular symptoms were recorded among 14 participants representing 10.8%. These symptoms were chest pains, dyspnoea, shortness of breath and palpitations. Respiratory system had 27(20.3%) of the participants suffering from cough and chest pains. Most of this participants in this group were children and might have been affected by the weather changes as it was in the rainy season. Gastrointestinal system recorded 33(25.2%) with symptoms and these were stomach aches, diarrhea, vomiting and constipation. Most of the abdominal symptoms were exhibited by the children among the participant. The gastrointestinal symptoms can be attributed to hygienic conditions and how food is handled.

Central nervous system review mainly saw headaches as the main symptom. However symptoms that related to this system were indicated by 34(26.2%) of the participants. It was also recorded that one participant had epilepsy.

Next system investigated was the genitourinary system where 14(10.8%) of the participants presented with symptoms of which some were frequency, blood in urine, burning sensation on urination as well as urinary tract infections. These patients were referred or given treatments to handle those infections and advised to visit the hospital if symptoms it persisted.

The musculoskeletal and integumentary systems were also reviewed among the participant. Waist pain and general body pains were of the highest incidence among 39(30.2%) participants. This symptoms could be linked with the farming activity that the community members indulge in as occupation. It is noted that farmers are majority of the participants. Skin rashes were also mostly identified among the children and infants who were screened.

Peculiar to the women was a column for the review of obstetrics, gynaecological and breast symptoms. Among the females 9(6.9%) indicated symptoms such as vaginal discharge, breast masses and pains and menstrual disorders and bleeding. Obstetric symptoms were probed into

more by an experienced midwife who was part of the team. These masses warranted a further review where they were directed for special ultrasound investigations.

The incidence of river blindness and other causes of blindness such as hypertensive retinopathies necessitated an ophthalmic review and fundoscopic examination. In the ophthalmic review 5(3.8%) of the participant had eye conditions and were referred to the eye clinic at Savelugu District Hospital for further management.

Point of Care Ultrasonography (POCUS)

After the screening of patient and physical examinations done, some patients were referred for ultrasound scans. These patients had masses palpated, tenderness, or presented with abdominal masses presumed to be gravid uterus and warranted the need for more definitive investigation.

One patient who had an obstetric scan had report coming out as a

1. Single intrauterine live fetus,

2. 22weeks 6 days gestational age,

3. Estimated data of delivery as 27/08/2022.

4. EFW = 562g

5. AFI = 16.0cm.

6. Placenta = posterior and high

7. No gross structural abnormalities observed

Another pregnant patient who was scanned recorded the following result;

1. Single viable intrauterine gestation with cephalic presentation

2. Placenta is posterior

3. FH is present

4. Sex: male (XY)

Another patient who had an anterior neck swelling was scanned and results are as follows;

1. Multinodular goitre involving the left lobe

2. Solitary nodule, RE lobe (normal lobe size)

3. Normal Isthmus

Another patient with enlarge prostate gland

1. Enlarged prostate gland of dimension 3.8 x 5.6 x 5.0 = 55.3g

2. With benign features

3. Normal kidneys

4. Normal urinary bladder

Participant with breast lump

1. Comparable right breast increased fibroglandular tissues

2. No mass, abscess, inflammatory changes seen

3. Normal breast scan (recommended repeat scan)

Finally, a participant with enlarged prostate gland

1. Enlarged prostate gland approximately 50g with protruding median lobes

2. Feature appear benign

3. Acute cystitis (Percentage retention = 20)

4. Normal kidneys

5. Reducible umbilical hernia

Inferential analysis

Chi-Square test for association between dependent and independent variables (p-values)

	Gender	Age	Occupation
Blood pressure	0.866	0.000	0.211
BMI	0.851	0.030	0.976
Pulse rate	0.613	0.789	0.342

This section of the study deals with the degree of association between variables. Dependent ones were blood pressure, BMI and pulses rate whereas the independent ones were gender, age and occupation. By employing the chi-square test of association, significant association were found between age distribution and BMI and age distribution and blood pressure.

Trends in blood pressure, BMI and pulse rate can be modelled from this association and used in predictions with regards to the population at the community that took part in the screening and medical program.

Discussion of findings

The population can be said to be an adult one due to the high rate of migration of younger inhabitants of the place the screening was done to the south to work or to attend schools. It was found that 60% of the people who came for the screening were aged from 20-40years and majority of the participants were aged from 20years or older. Fewer individuals were under the age of 20years and could be due to low patronage by this group or their absence from the settlement. Significant about the demographic characteristics of the people of Kpendua is with their occupation, which is farming. Among the participants, more than 70% had married. This findings was likely to affect the incidence of sexually transmitted diseases. Kpendua is a rural settlement and the community frowns on sexual promiscuity, as a result marriages are arranged to prevent any unacceptable sexual practices. The study found that 95.7% had no hepatitis B virus infection.

From the data collected 83.5% of participants in the screening program were farmers and lived a very active life. High percentage of the participants, 90.4%, did not have any form of chronic disease such as hypertension or diabetes as well as other ones. The high activity lifestyle of the people is highly likely to be responsible for the very low incidence of chronic disease among the people of Kpendua.

The level of activity of the people had an influence vital signs taken for in most of the participant. It was found that the Body Mass Index (BMI) was mostly in normal ranges evident by 81% normal BMI, 16.7% recorded hypertension for blood pressure vitals, 90.4% had normal pulses, 94% had normal random blood sugar levels.

According to the different systems reviewed, it was found that musculoskeletal system had most presenting complaints as 30.3% had muscle pain, joint pain or joint welling and was

mostly due to the work they did on a daily basis. It is worth noting that in totality the systemic enquiry had minimal detection of deviation from the normal ranges.

The screening clearly found cases of malnutrition in almost all the children who showed up with the parents. Upon further questioning it was found that the dietary intake was very poor. It was clear that the living standards of the place was low though most of them did not have any chronic diseases. Children did not take much nutritional foods but very nutritional food crops are grown in the area by the same people whose children are malnourished. It was also found from some children were born with low birth weight upon thorough questioning of the women with children, they mentioned they fears to go through caesarean section when the baby it a big baby so they rather reduced their dietary intake so they do not have a big baby. The fetus that is developing naturally has a good affinity for all the needed nutrients and oxygen therefore the fetus does not get growth problems in-utero but the toll is taken on the mother whose nutrition is shunted to the fetus. The need for education was evident.

Point of care ultrasound was a priceless tool used in investigation of cases that required quick investigations. This device comes with internet connectivity creating a telemedicine system which is currently earning its usefulness and its technological capacity is poised to make medicine easy and better very near in the future. The use of the point of care ultrasound system with a telemedicine connection was just apt for a remote area where even light connections is not available.

In this screening program held, the device was able to detect into detail obstetric cases, anterior neck swelling, enlarged prostate and a breast lump. The device captured very fine details such as the dimensions in the cases with swellings and for obstetrics case, the gestational age and all parameters that are clinically needed were obtained.

Conclusions

The screening process was conducted at Kpendua in the Savelugu district in the Northern region of Ghana. The objective was to do a general screening program where history taken, physical examination and basic investigations such as Rapid Diagnostic tests for malaria, HIV, HBV and pregnancy tests and finally, the use of the Point of Care Ultrasound device were done. Medical advice was given to individuals who presented with ailments, some were also referred to the main health facility at Savelugu. The program was successful since the objectives were achieved adequately. Some patients were also given treatment, such as antihypertensive drugs, drugs for abdominal pain, head ache and dewormer drugs to individuals of appropriate ages.

The program was successfully completed in two day.

Recommendations

- Recommendations to enhance the standard of living in the Kpendua settlement was solve the problem of malnutrition, poor feeding in pregnancy, making available safe and portable water as well as control of health conditions of people well so they do not reach an uncontrollable stage.
- Education of the people of Kpendua will be of great use to sensitive the people of the need for hygiene, prevention of worm infestation, intake of nutritional food and uptake of periodic screening programs.
- It is also recommended that the quality of life should be improved by liaising with the municipal assembly to provide avenues for poverty reduction programs.