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Original Article

Active Case Search of Kala-azar in an Endemic Area of Bangladesh:

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Abstract

Visceral Leishmaniasis which is also known as kala-azar is one of the most alarming vector borne Disease in Bangladesh. Kala-azar elimination program was launched in Bangladesh in the year 2008. The primary goal of this program is to decrease the burden of Visceral Leishmaniasis as much as possible. Active case search method are currently using for detection of Visceral Leishmaniasis patient in the community. The successful active case search activity or method lies in preventing and reducing Visceral Leishmaniasis in Bangladesh. The purpose of this study was to assess the Active Case Search activity of Visceral Leishmaniasis Elimination Program in selective endemic area in Bangladesh. This cross-sectional study was conducted within the time frame of 1st January 2016 to 31st December 2016 at different unions of Fulbaria upazila in Mymensingh district using purposive sampling technique according to availability of the respondents and data was collected with pre-tested semi-structured questionnaire by face to face interview. A total number of 111 respondents were enrolled in this study as per selection criteria. Among 111 respondent's male were 71(64%) and female were 40(36%) and 36 (32.4%) were farmer, 29 (26.1%) were students of different classes, 20 (18%) women were housewife, 11 (9.9%) respondents were in service, 6 (5.4%) were day Laborer and 7 (6.3%) had other profession. Regarding housing status most of them {81(72.98%)} had the kacha housing and only a few respondents {3 (2.7%)} had pakka housing. According to the distance of cowshed or cattle house of the majority of the respondents 95(85.6%) were in the nearest location from living room (Less than 12 feet). Among 111 respondents most of them {78(70.3%)} suffered from kala-azar and 33(29.7%) not suffered from kala- azar in the study area and among these 78 respondents 62(77.5%) found Post kala-azar Dermal Leishmaniasis (PKDL) spot on the body. Most of them 80(72.1%) stated that there was no regular routine visit of the health worker. 90 (81.1%) respondents mentioned that the frequency of Indoor Residual Spray (IRS) was once in a year and 21(18.9%) mentioned 2 times in a year. Among 111 respondents 78(70.27%) mentioned that last supply of Long Lasting Insecticide Net (LLIN) was more than 1 year ago,18(16.22%) mentioned before 6 month and 15(13.51%) before 1 year. This study permits to conclude that Active Case Search Activity of Visceral Leishmaniasis program in Bangladesh facing challenges due to lack of monitoring and supervision. Without strengthening of active case search activity, it is impossible to reach the goal.

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Introduction

Visceral Leishmeniasis is a disease of immense public health importance in Bangladesh, India and Nepal. It mostly affects the poorest population

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groups among marginalized communities living primarily in rural areas. Elimination of Visceral Leishmeniasis in countries of the WHO South-East Asia (SEA) Region is feasible because of its unique epidemiological features. Annually 500,000 visceral Leishmaniasis cases are reported globally. An estimated 147 million people are at risk in three South Asian countries- Bangladesh, India and Nepal with about 100,000 cases occurring annually. The disease is predominant in the poor and marginalized communities (BeNazir A, et al. 2014).

Human visceral leishmaniasis (VL) / kala-azar (KA) is a severe chronic disease caused by parasites of the *Leishmania donovani* complex. The disease is lethal if left untreated and affects approximately half a million new patients annually worldwide, with 60% of new cases on the Indian sub-continent. The method for this review included VL surveillance data of the Disease Control Unit of the Directorate General of Health Services, the Government of Bangladesh, national and international expert opinion on VL control in Bangladesh from a recently held advocacy meeting on VL in November 2012 in Dhaka [organized by the Disease Control Unit of the Directorate General of Health Services, Bangladesh and Program For Appropriate Technology in Health (PATH)], and information from the published literature (Khatun J, et al. 2014).

Bangladesh has set the target of elimination of Kala-azar from Bangladesh by 2017. The goal is to reduce the annual incidence of Kala-azar to less than 1 patient per 10 thousand populations. The strategic objectives are to ensure early diagnosis and complete management of the cases, implement integrated vector management, patient and vector surveillance and conduct operational research (WHO,2015). Defeating kala-azar is a task that involves challenges. These include early detection of all kala-azar and post-kala-azar dermal Leishmaniasis cases, improved treatment for post-kala-azar dermal Leishmaniasis cases, and presentation for and compliance with treatment (Mondal D, et al.2010).

Material and Methods

This study was carried out to assess the status of Active Case Search of Visceral Leishmaniasis in endemic areas of Bangladesh. The following methodology followed to conduct the study.The study was undertaken with the objective to assess the status of Active Case Search of Visceral Leishmaniasis in endemic areas of Bangladeshby descriptive type of Cross-sectional Study. The study was conducted in Pre-eliminated kala-azar endemic area; seven unions of Fulbaria upazila in Mymensingh district were considered for data collection area.This study was conducted from 1st January, 2016 to 31st December, 2016.

Total 111 respondents were taken part in interview schedule from selected data collection area. Data was collected with a pre-tested structured questionnaire by face to face interview and record review

- The data collection spots (community clinic/union sub center/ UHC/ school) were published to the community prior to data collection with the help of announcing in the mosque or milking.
- At data collection spot, to identify the suspected case the temperature of the respondent was measured, the spleen was examined and the hypo-pigmented macular lesion of PKDL patients was tested.

Socio-demographic data were collected by interviewing the respondents or legal guardian with semi-structured questionnaire.

4. Results

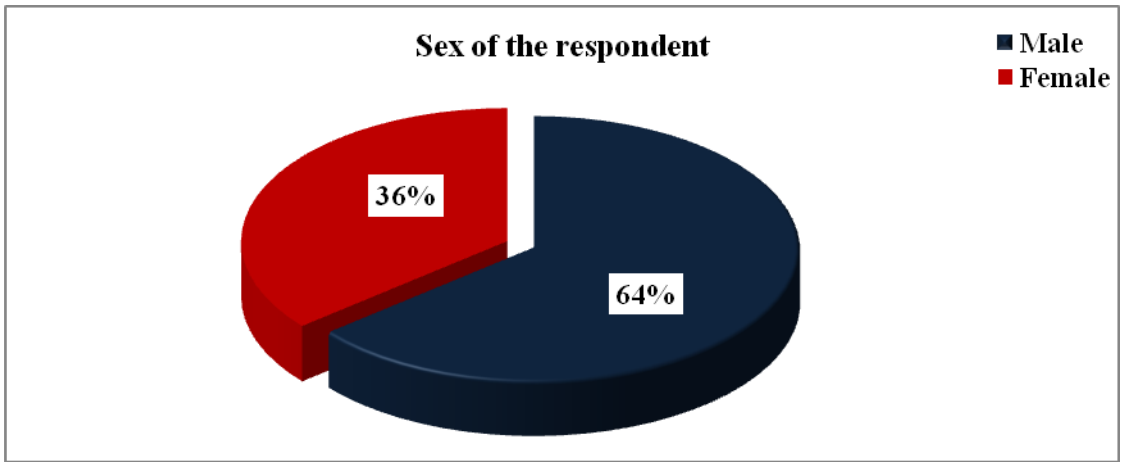
Table 1: Distribution of the respondents according to their age

n=111

Age group (years)	Frequency	Percentage (%)
6-15	29	26.1
16-30	39	35.1
31-50	36	32.4
>50	7	6.3
Total	111	100.0
Minimum age: 6 years, Maximum age: 66 years, Mean: 27.23		

Table-1 shows that total 111 respondents were grouped into 4 different age groups. Among them 39(35.1%) were in 16 to 30 years age group, 36(32.4%) were in 31 to 50 year, 29(26.1%) were in 6 to 15 years and 7(6.3%) were more than 50 years. Where minimum age was 6 years and maximum was 66 years. The mean age was 27.23 years. (Table 1)

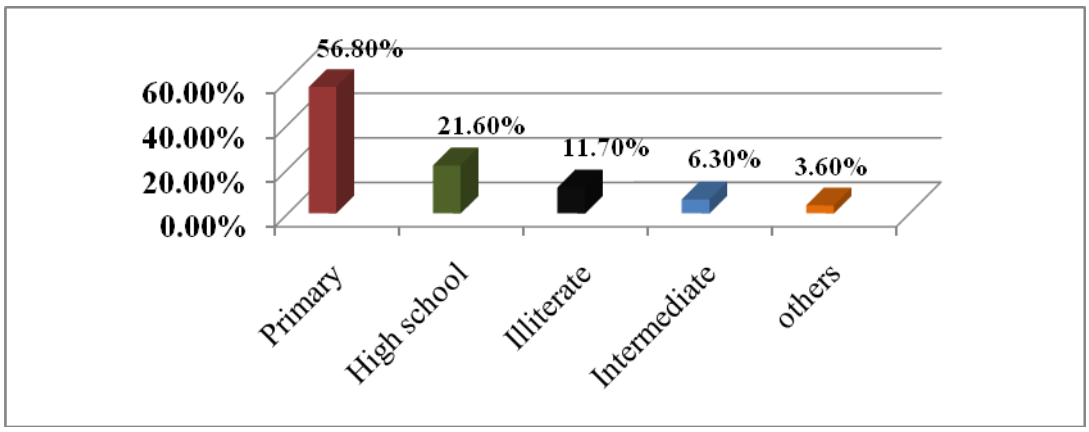
Fig 1: Pie chart showing the distribution of the respondents according to their sex



Among the 111 respondents 71(64%) were Male and 40(36%) were female. (Fig 1)

Figure 2: Distribution of the respondents according to their educational status

Among 111 respondents 63 (56.8%) respondents had primary education, 24 (21.6%) had gone to high school, 13 (11.7%) were illiterate and 7 (6.3%) passed the intermediate or in higher secondary level. (Fig 2)



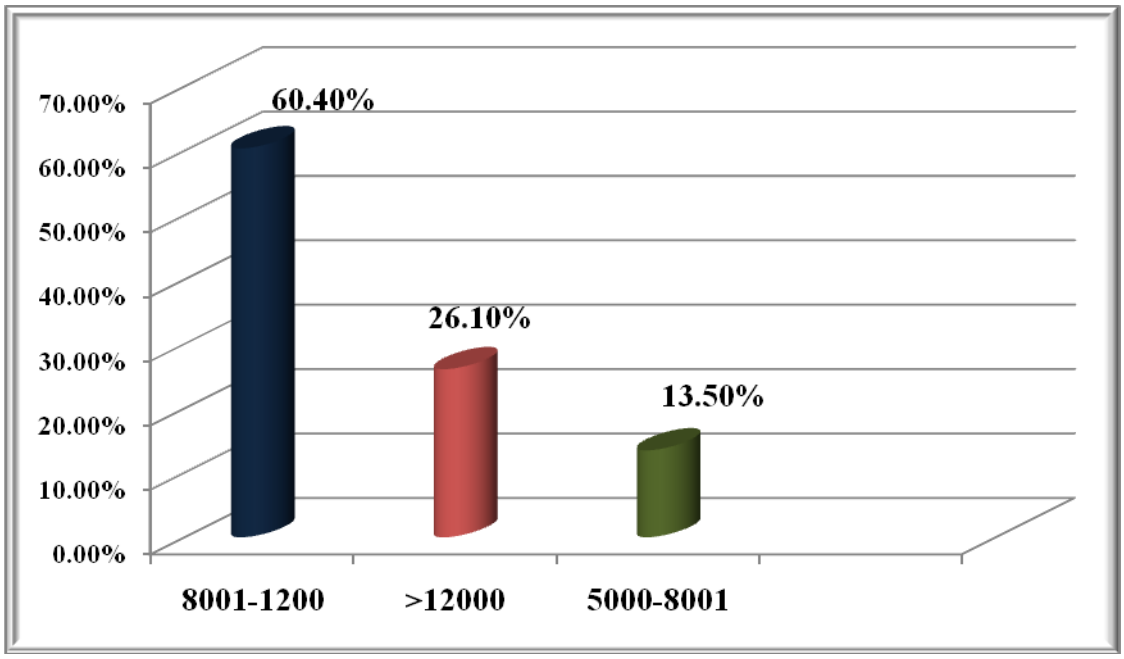
2. Distribution of the respondents according to their occupational status [n=111]

Occupation	Frequency	Percentage (%)
Service	11	9.9
Farmer	36	32.4
Student	29	26.1
Housewife	20	18.0
Businessman	2	1.8
Day Laborer	6	5.4
Others	7	6.3
Total	111	100.0

Among the 111 respondents 36 (32.4%) were farmer, 29 (26.1%) were students of different classes, 20 (18%) women were housewife, 11 (9.9%) respondents were in service, 6 (5.4%) were day Laborer and 7 (6.3%) had other profession. (Table 2)

3. Distribution of the respondents according to their Monthly Family Income

Among the 111 respondents, 67 (60.4%) respondent's family income was in 8001-12000 taka, 29 (26.1%) had more than 12000 taka and 15 (13.5%) respondent's family income was in 5001-8000taka. (Fig 8)



4. Distribution of the respondents according to their housing status

Among 111 respondents, majority of the respondents 81(72.98%) had the kacha housing, 27 (24.32%) had semi pakka and 3 (2.70%) respondents had pakka housing (Table 5).

[n=111]

Housing	Frequency	Percentage (%)
Kacha	81	72.98
Semi pakka	27	24.32
Paka	3	2.70
Tin shed	0	0
Total	111	100

Table 5: Distribution of the respondents according to their housing status

Distribution of the respondents according to the distance of cowshed or cattle house

Among the total number of 111 respondents most of them 95 (85.6%) respondent's cowsheds are in the nearest location from living room which is less than 12 feet, 14(12.6%) respondent cattle house were attached to the living room. (Figure 10)

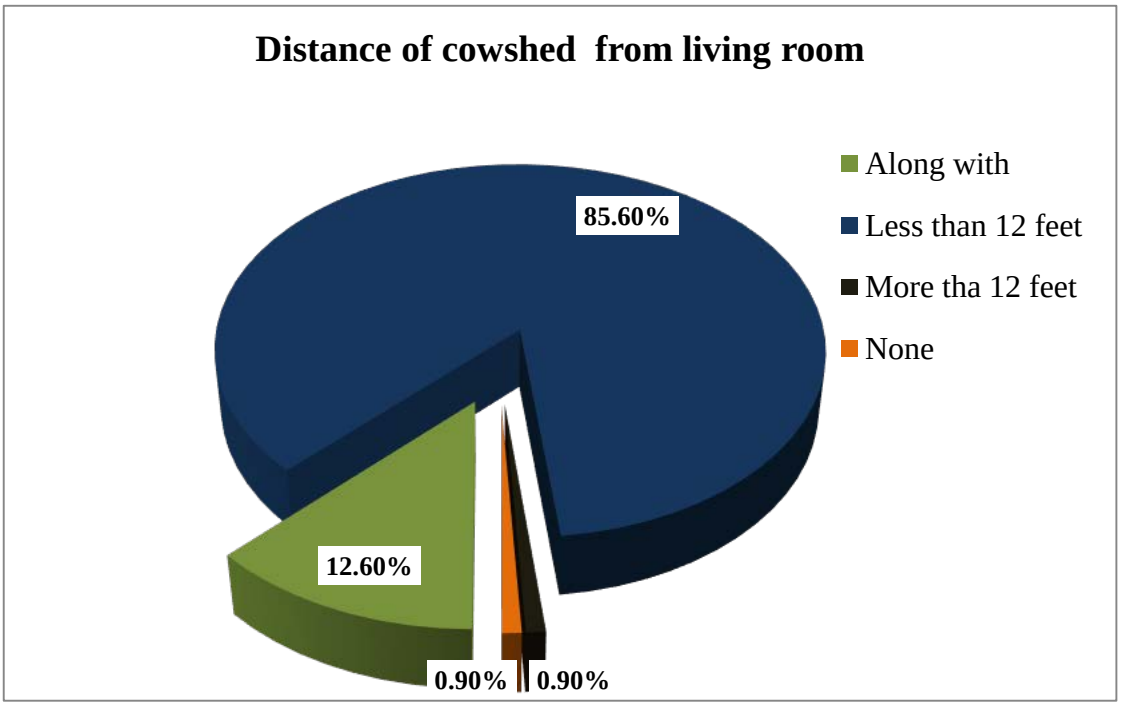


Fig 10: Pie chart showing the distribution of the respondents according to the distance of cowshed from their living room.

Distribution of the respondents according to the distance of nearest health centre from their residence

Among 111 respondents majority 86 (77.5%) were living far from the nearest health centre about more than 5 km and 25 (22.5%) respondents were in 4-5 km distance from the nearest health centre.(Table 6)

n=111

Distance	**Frequency**	**Percentage (%)**
4-5 km	25	22.5
More than 5 km	86	77.5
Total	111	100.0

Distribution of the respondents according to the history of suffering from kala-azar

Out of 111 respondents majority 78 (70.3%) had the history of kala-azar and 33 (29.7%) were not suffered from kala-azar.(Figure 11)

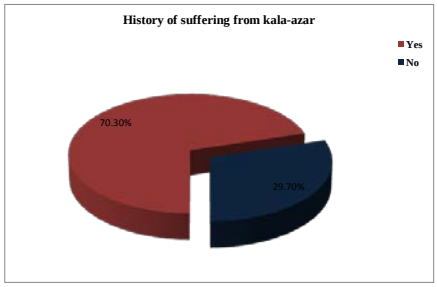


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Figure 11: Pie chart showing Distribution of the respondents according to the history of suffering from kala-azar

Distribution of the respondents according to the family member's history of suffering from kala-azar

Among 111 respondents majority 80(72.1%) respondent's family member had the history of kala-azar and 31 (27.9%) family member were not suffered from kala-azar. (Table 7)

n=111

History of family member suffering from Kala- azar	Frequency	Percentage (%)
Yes	80	72.1
No	31	27.9
Total	111	100.0

4.15 Distribution of the respondents according to the presence of PKDL spot on the body

Out of 111 respondents 62 (55.9%) had PKDL sign on their body and 49(44.1%) had no sign of PKDL on body. (Figure 12)

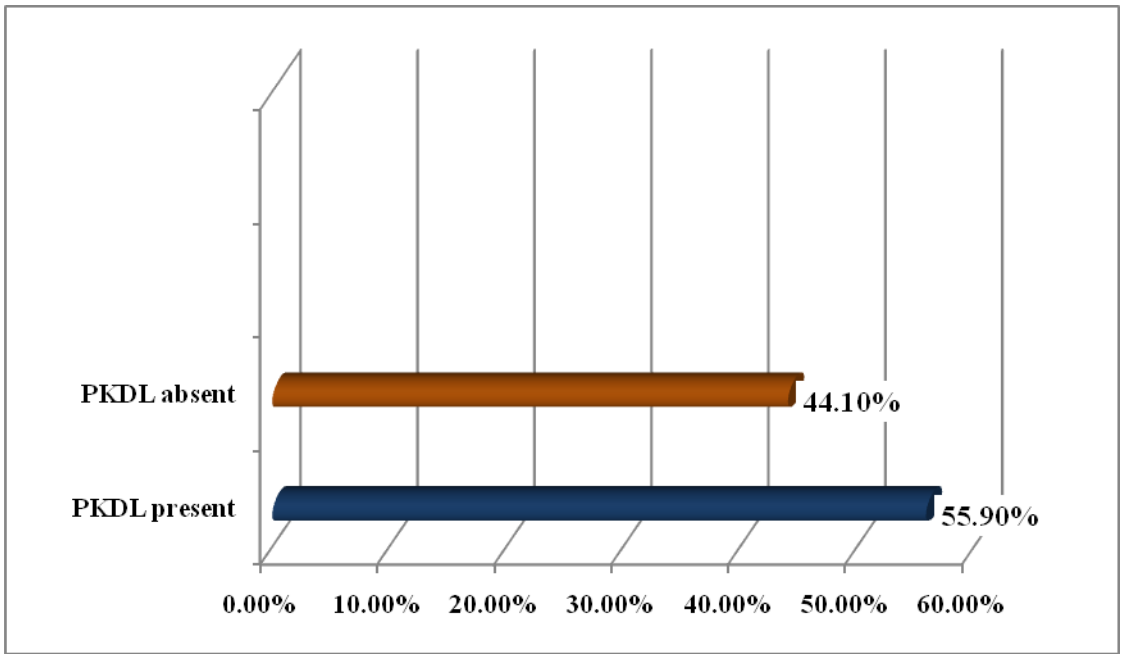

Figure 12: Bar chart showing the distribution of the respondents according to the presence of PKDL spot on the body

4.16 Distribution of the respondents according to the presence of PKDL spot on the body of their family member

Out of 111 respondents 52 (46.8%) respondent's family member had PKDL sign on their body and 59(53.2%) had no sign of PKDL on body. (Table 8)

n=111

Presence of PKDL spot n family member's body	Frequency	Percentage (%)
Yes	52	46.8
No	59	53.2
Total	111	100.0

Table 8: Distribution of the respondents according to the presence of PKDL spot on the body of their family member

Distribution of the respondents by their opinion about periodical or routine visit of health worker for kala-azar

Among 111 respondents majority of the respondents 80(72.1%) had the negative opinion about routine visit and 31(27.9%) had positive opinion about routine visit of health worker. (Figure 13)

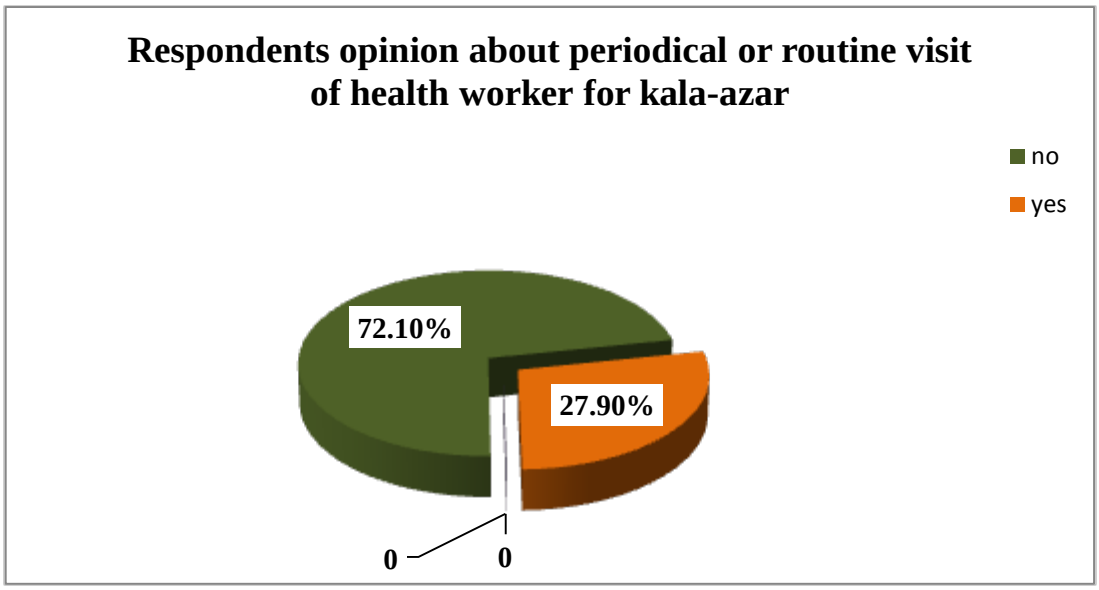

Figure13: Pie chart shows the Distribution of the respondents by their opinion about periodical or routine visit of health worker for kala-azar

4.18 Distribution of the respondents by their opinion about interval of each visit by the health worker

Respondent's opinion about interval of each visit by the health worker, Majority of the respondents 74(66.7%) told more than 5 months, 30(27%) told 3-5 months and 7 (6.3%) give the opinion of interval of each visit is 1-3 months. (Table 9)

n=11

Interval of each visit	Frequency	Percentage (%)
1-3 months	7	6.3
3-5 months	30	27.0
more than 5 months	74	66.7
Total	111	100.0

Table 9: Distribution of the respondents by their opinion about interval of each visit by the health worker

4.19 Distribution of the respondents by their Health seeking behavior about of kala-azar symptoms

About the health seeking behavior of kala-azar symptoms of the respondents is that, majority of the respondents 48 (43%) are visiting to the Upazilla Health Complex, 44(39.64%) to the Community Clinic, 6(5.4%) to the union sub-centre and 5(4.5%) are using other facilities. Out of 111 respondents 8(7.2%) of them were not taking any health seeking facilities of kala-azar symptoms.(Figure 15)

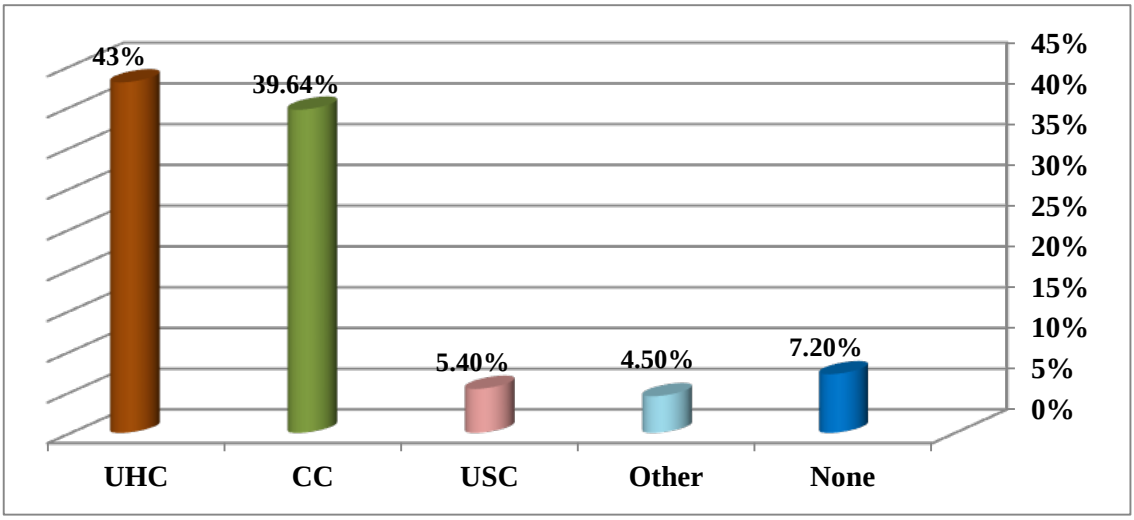

Figure 15: Bar chart showing the Health seeking behavior of the symptoms of kala-azar.

4.20 Distribution of the respondents by their opinion about elapsing time of last IRS

Out of 111 respondents majority 93 (83.8%) were giving opinion about elapsing time of last IRS is more than 1 year and 18(16.2%) were mentioned less than 1 year. (Table 10)

n=111

Elapsing time	Frequency	Percentage (%)
Less than 1 year	18	16.2
more than 1 year	93	83.8
Total	**111**	**100.0**

Table 10:Distribution of the respondents by their opinion about elapsing time of last IRS

4.21 Distribution of the respondents by their opinion about yearly frequency of IRS

Table 21 shows that most of the 90 (81.1%) respondents mentioned that the frequency of IRS was 1time in a year and 21(18.9%) mentioned 2 times in a year. (Figure 16)

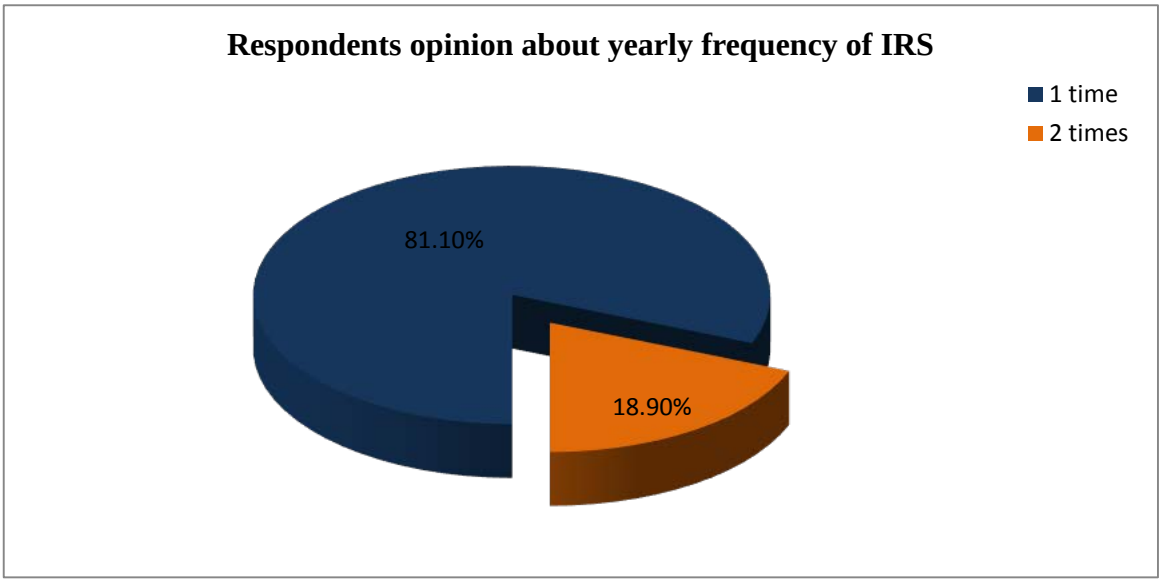

Figure 16: Pie chart showing distribution of the respondents by their opinion about yearly frequency of IRS

4.23 Distribution of the respondents by their opinion about last supply of LLIN (Long Lasting Insecticide Net)

78(70.27%) respondents give the opinion about last supply of LLIN was more than 1 year ago,18 (16.22%) mentioned before 6 month and 15(13.51%) before 1 year. (Figure 17)

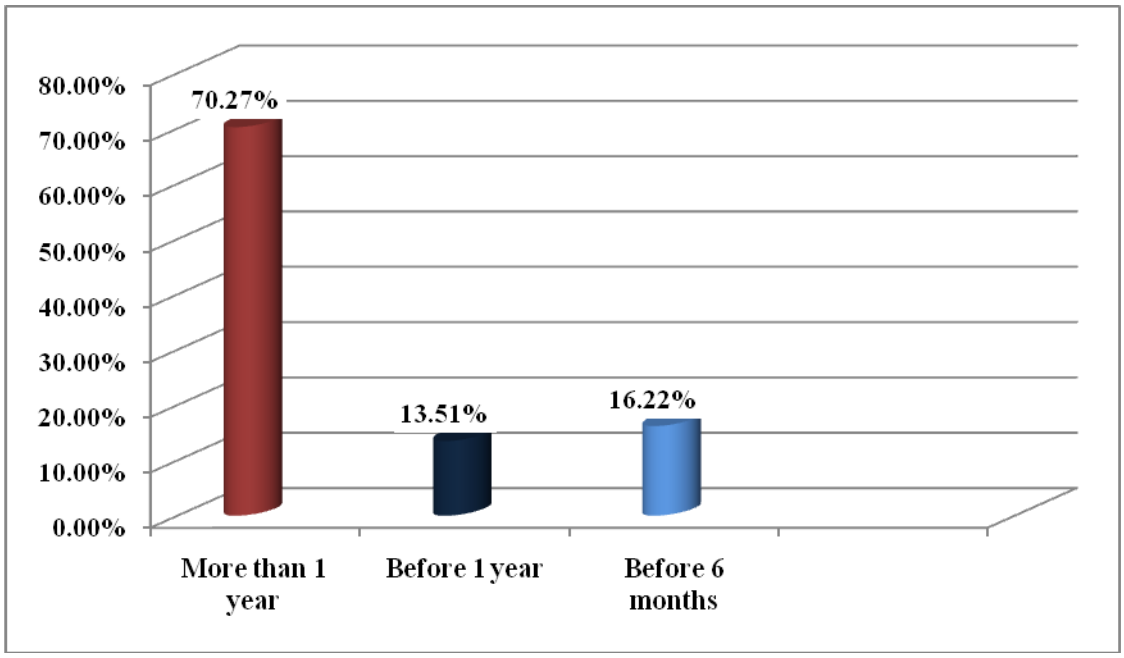

Figure 17: Bar chart showing the distribution of the respondents by their opinion about last supply of LLIN

Discussion

A total number of 111 respondents were enrolled in this study. The distribution of the study population according to sex was measured. Among 111 respondents male were 71(64%) and female were 40(36%). Similar findings was also reported by Singh (2006) and found that 41.9% were male and 15.1% were female

Among all respondents according to the housing status 81(72.98%) had the kacha housing, 27 (24.32%) had semi pakka and 3 (2.7%) respondents had pakka housing. Whereas another study of Bangladesh Agriculture University shows that 53% live in kacha house. According to the distance of cowshed or cattle house of the respondents are in the nearest location from living room (Less than 12 feet) 95(85.6%) and 14(12.6%) respondents living attatched with cattle house. Similar study (John Lagu, 2008) reported that 80% respondent live along with cattle house. Another study done by Jahanara et al (2014) reported that 6.8% found who were living attached with cowshed

Among 111 respondents 78(70.3%) suffered by kala-azar and 33(29.7%) not suffered in the study area. Similar study of (WHO, 2015) reported that 65.3% people suffered by kala-azar previously.

Among all respondents 80(72.1%) has history of suffering by kala-azar and 31(27.9%) not related to family history of kala-azar, there are no similar study found where relation of family history reported.

The distributions of the respondents according to the presence of PKDL spot on the body were recorded. The presence of PKDL spot was 62(55.9%). Similar study (Shri, 2011) done in

India where PKLD spot on the body reported 64.6%.

The distribution of the respondents about routine visit of health worker for kala-azar 80(72.1%) had the negative opinion about routine visit and 31(27.9%) had positive opinion about routine visit of health worker. Previously there was no similar study found.

According to this study the distribution of the respondents by their opinion about elapsing time of last visit by the health worker, Majority of the respondents 72(64.9%) told that more than 5 months, 32 (28.8%) told 3-5 months and 6(5.4%) give the opinion of elapsing time of health worker visit is 1-3 months. Similar study done by (Shri,2011) reported that 6.4% visited by health worker within 1-3 months in India.

The distribution of the respondents by their Health seeking behavior about with kala-azar symptoms, 48 (43%) are visiting to the Upazilla Health Complex, 44(39.64%) to the Community Clinic, 6(5.4%) to the union sub-centre and 5(4.5%) are using other facilities. Out of 111 respondents 8(7.2%) of them were not taking any health seeking facilities of kala-azar symptoms. Similar study done by (Shri, 2006) and reported that 55.9% seek kala-azar treatment facilities in Primary health care centre.

The respondent's opinion about yearly frequency of IRS, majority90 (81.1%) respondents mentioned that the frequency of IRS was once in a year and 21(18.9%) mentioned 2 times in a year. Annual report of WHO 2015 reported that data collection area covered IRS more than 2 times in a year.

Conclusion

Kala-azar is still very alarming in this country. Proper surveillance, complete treatment course and rapid diagnosis are very urgent for elimination of this disease from Bangladesh. Government as well as NGOs should take step jointly overcome this burden. The national VL elimination program has experienced considerable success as a result of its operational research activities in early case detection and complete treatment, IVM, and clinical research. However, the program needs to strengthen its activities for effective surveillance, BCC, monitoring, and evaluation. Regular monitoring, detection of NKA & PKDL patients, access to proper treatment and Indoor Residual spray in Kala-azar endemic areas can lead to the success of the kala-azar

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