Internship Training

At

CARE INDIA

By

DR. NINKUSH AGGARWAL

PGDHHM

2012-2014

IIHMR DELHI

International Institute of Health Management Research

Internship Training

At

CARE INDIA, Bihar

SKAEP Project

Title

KAP regarding Kala Azar- A Cross sectional study in endemic village of Kurhani
Block of Muzaffarpur, Bihar

By

Dr. Ninkush Aggarwal

Under the guidance of

Dr. Preetha GS

Post Graduate Diploma in Hospital and Health Management

Year – 2012-2014

International Institute of Health Management Research

New Delhi

Completion of Dissertation from CARE India, Bihar

The certificate is awarded to

Name - Dr. Ninkush Aggarwal

In recognition of having successfully completed his
Internship in the department of

SKAEP, Bihar

and has successfully completed his Project on

Knowledge , Attitude and Practices regarding Kala Azar, a Cross Section study in Kurhani
Block, Muzaffarpur

Date : 18-05-2014

~~Organization- CARE India, Bihar~~

He comes across as a committed, sincere & diligent person who has a
strong drive & zeal for learning.

We wish him all the best for future endeavors.

Sumit Kumar

Program Manager

**CARE India, Muzaffarpur**

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TO WHOMSOEVER MAY CONCERN

This is to certify that Dr.Ninkush Aggarwal student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at CARE India, Bihar from 27th January, 2014 to 27th April, 2014.

The Candidate has successfully carried out the study designated to his during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements. I wish him all success in all his future endeavors.

Dr. A.K. Agarwal
Dean, Academics and Student Affairs
IIHMR, New Delhi
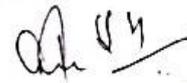
Dr. Preetha GS.
Mentor
IIHMR, New Delhi

Certificate of Approval

The following dissertation titled "KAP regarding Kala Azar, a cross sectional study in endemic village of Kurhani block of Muzaffarpur, Bihar" at "CARE India" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name

DR. D. C. JAIN

Dr. Radhika S. Adholeya

Signature

DCJain

Adholeya

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Ninkush Aggarwal** , a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He is submitting this dissertation titled "Knowledge , Attitude and Practices regarding Kala Azar, a Cross Section study in Kurhani Block, Muzaffarpur" at " CARE India, Muzaffarpur" in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.
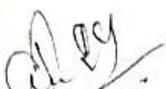
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INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled KAP regarding **Kala Azar, a cross sectional study in endemic village of Kurhani block of Muzaffarpur, Bihar** and submitted by **Dr. Ninkush Aggarwal** Enrollment No.PG/12/056 under the supervision of **Mr. Sumit Kumar, program manager, CARE India and Dr. Preetha G.S., IIHMR, New Delhi** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 27th January to 27th April 2014 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

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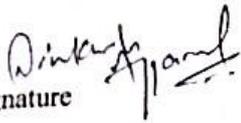
FEEDBACK FORM

Name of the Student: Dr. NINKUSH AGGARWAL

Dissertation Organisation: CARE India.

Area of Dissertation: KAP regarding KALA AZAR, a cross-sectional study in KURHANI block in Muzaffarpur district.

Attendance: 100%.

Objectives achieved: Yes.

Deliverables: Tabulation & Analysis done.

Strengths: Good analytical skills, a good listener with problem-solving attitude.

Suggestions for Improvement: A Try and spend more time for a more in-depth understanding of factors at the ground level.

Signature of the Organisation Mentor (Dissertation)

Date: 19.05.2014
Place: Muzaffarpur

CARE *INDIA*

CARE (**Cooperative for Assistance and Relief Everywhere**)
History:

CARE is a major international humanitarian agency delivering broad-spectrum emergency relief and long-term international development projects. Founded in 1945, CARE is nonsectarian, impartial, and non-governmental. It is one of the largest and oldest humanitarian aid organizations focused on fighting global poverty.[1]

CARE's programmes in the developing world address a broad range of topics including emergency response, food security, water and sanitation, economic development, climate change, agriculture, education, and health. Within each of these areas, CARE focuses particularly on empowering and meeting the needs of women and girls and on promoting gender equality.[2]

CARE International is a confederation of thirteen CARE National Members and one Affiliate Member, each of which is registered as an autonomous non-profit non-governmental organization in the country.

CARE has been working in India for over 60 years, focusing on ending poverty and social injustice but became member in Nov. 2013. We do this through well-planned and comprehensive programmes in health, education, livelihoods and disaster preparedness and response. Our overall goal is the empowerment of women and girls from poor and marginalised communities leading to improvement in their lives and livelihoods. We are part of the CARE International Confederation working in 84 countries operating 927 projects (2013) for a world where all people live in dignity and security, Out of which 256 projects are in ASIA region.

In India CARE focuses on the empowerment of women and girls because they are disproportionately affected by poverty and discrimination; and suffer abuse and violations in the realisation of their rights, entitlements and access and control over resources. Also experience shows that, when equipped with the proper resources, women have the power to help whole families and entire communities overcome poverty, marginalisation and social injustice.

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CARE India Mission

We facilitate the empowerment of women and girls from poor and marginalised communities in the fight to overcome poverty, exclusion and social injustice. We nurture leadership internally and among partners to achieve this mission.Its commitment and work for the welfare of people, it has placed amongst the leading NGOs.

Key Areas of Work

CARE Programmes in the field of:

- Education

- Health

- Livlihood

- Disaster Response

Education:

- ✓ Girls' Education Programme
- ✓ Udaan
- ✓ Kasturba Gandhi Balika Vidyalayas (KGBV)
- ✓ Girls' Leadership Initiative
- ✓ Join My Village
- ✓ Realisation of Citizenship through Good Governance
- ✓ ECD

Health:

- ✓ SAKSHAM
- ✓ AXSHYA
- ✓ Family Health Initiative
- ✓ SWASTH
- ✓ EMPHASIS
- ✓ Urban Health Initiative
- ✓ IMPACT
- ✓ CHCMI
- ✓ SEHAT

Livilihood:

- ✓ Kutch Livelihood Education Advancement Project K-LEAP
- ✓ Pathways
- ✓ Cashew Value Chain
- ✓ LIFE
- ✓ Banking on Change
- ✓ Insure Lives and Livelihoods

Disaster Response:

Programmatic Strategies

SKAEP Project

Objective: Support the Government of Bihar to reduce morbidity and mortality due to Kala Azar in districts of Bihar and accelerate progress toward elminating the disease
Start date: October 2012

The Gates Foundation has recently awarded an additional grant to CARE, called the Strengthening Kala Azar Elimination Project (SKAEP). The project intends to address critical challenges affecting Kala Azar elimination, identified in 8 districts where CARE's Integrated Family Health Initiative (IFHI) is currently operational, to support the Government of Bihar to reduce morbidity and mortality due to Kala Azar and scale it up to the entire state and accelerate progress towards eliminating the disease. The challenges include lack of execution capacity to increase coverage of treatment in the public and private sector, poor performance in vector control in the public sector, under reporting of cases, no quality monitoring of Indoor Residual Spraying (IRS), Post Kala Azar Dermal Leishmaniasis (PKDL) cases, weak referral system and no proper active case search.

Goal & objectives of the Project:

Strategies of the Project:

- Provide technical support to the government in elimination of KA.
- Supportive Supervision during IRS

Geographic Area:

2013: 8 Districts:

2014: scale up to 33 districts of Bihar

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Acknowledgement

"A Great achievement solution dawns with an idea, grows with our effort and attains fulfillment with our will power". In our effort towards the realization of my project work, I have drawn on the guidance of many people for which I'm glad to acknowledge.

I got the opportunity to pursue my Dissertation from CARE India, Bihar. It was an opportunity to work with one of the best international NGO.

I take this opportunity to express our profound gratitude and deep regards and very much indebted to Afaq Shah (Director- VL) for giving me the opportunity to work in the project and for his valuable guidance.

I acknowledge the support rendered by my mentor **Sumit Kumar** , PM- Muzaffarpur Region for providing an opportunity to carry out the project work and utilizing the facilities available. Without his valuable guidance and consistent support, this project would not have got underway. I am also grateful to Rahul**,** Basab, and Ishani for their consistent support during the analysis of the data.

I am extremely grateful to my mentor Dr. A. K Kokhar, Prof. at IIHMR, New Delhi for their co-operation, help and wholehearted encouragement. Their assistance enabled me, to overcome many obstacles during the work of my project study.

Finally, it would be incomplete if I would not mention our gratitude towards the respondents (Community members) who helped us with their valuable time. I'm also thankful to all those who have directly or indirectly encouraged me to complete this project.

Abbreviations and Acronyms

ANM	Auxiliary Nurse Midwife
AWW	Anganwadi Worker
AWC	Anganwadi Center
ASHA	Accredited Social Health Activist
CARE	Cooperative for Assistance and Relief Everywhere
GOI	Government of India
KA	Kala Azar
KLW	Kala Azar Link Worker
NGO	Non-Government Organization
SPSS	Statistical Package for the Social Sciences
UNICEF	United Nations Children Education Fund
VL	Visceral Leishmaniasis
WHO	World Health Organization

Executive Summary:-

Visceral leishmaniasis (VL), popularly known as kala-azar (KA) in Hindi, is caused by a protozoa, *Leishmania donovani,* and transmitted by the female sandfly *Phlebotomus argentipes* in India. It is endemic in 62 countries, with ~200 million people at risk.[1] It is estimated that annually ~500,000 cases of VL occur,[1,2] with a prevalence of 2.5 million..

The disease has been endemic in India for a long time and the earliest outbreaks occurred in the early nineteenth century. Kala-azar used to occur in cyclical epidemics at the intervals of 10-15 years. The disease presents with fever of long duration (more than two weeks) with splenomegaly,anaemia progressive weight loss. In endemic areas, children and young adults are its principal victims.

With the launching of insecticidal spraying under National Malaria Control Programme/ National Malaria Eradication Programme in 1953 and 1958 respectively, the disease declined to negligible proportions as a result of the reduction of densities of the vector, *Phlebotomus argentipes.* Withdrawal of insecticidal spraying from erstwhile malaria endemic areas following successful malaria control resulted in a gradual build up of vector populations and renewed transmission of the disease. A resurgence of Kala-azar during 1970.s, initially in four district of Bihar followed and eventually engulfed the entire north Bihar, parts of south Bihar and several districts of West Bengal. The Kala-azar also began to be reported from erstwhile endemic districts of eastern Uttar Pradesh[6]. The disease is also endemic in the neighboring countries Bangladesh and Nepal. The state of Bihar accounts for > 90% of the cases in the country.[6–8]

Out of the total cases of kala-azar reported annually in India, 90% of the cases are reported from Bihar alone. Focal and sporadic cases of kala-azar have been occurring regularly in many districts of Bihar since 1977. Presently, 33 out of 37 districts in Bihar are endemic at various level and nearly 67.5 million people are at risk of this disease that pose a major public health concern in Bihar, India.

According to GoB, Muzaffarpur has the leading case load of Kala Azar in 2013, with a total of 1061 cases reported.

The present study tends to conduct a situational analysis to assess the knowledge, attitude and practices in the community regarding kala azar in Mohanpur village of Kurhani block of Muzaffarpur. In addition it also tends to unmask various socio-economic and demographic factors that affects the knowledge level of the community and their behavior regarding kala azar.

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A descriptive cross sectional survey across the Kurhani block was conducted using quantitative research methods. A total of 166 households were interviewed using a structured questionnaire. The village was selected by purposive sampling while pseudo stratified random sampling was used to select the respondents.

Using the questionnaire, information was gathered from the respondents about the knowledge regarding kala azar, preventive measures and treatment seeking behavior of the community and their attitude towards spray squads and spraying service. Various correlates affecting the knowledge level of the community regarding kala azar and its prevention were done to analyze the situation. Quantitative data was gathered by door to door visits and was then analyzed using SPSS 16.0 package.

The results present a gloomy scenario with the majority of the respondents (63 percent) had not heard about Kala Azar which is a matter of great concern. Out of the rest 37 percent who had heard about Kala Azar almost 98 percent cited "mosquito bite" as the most common cause of Kala Azar, while only a negligible proportion (2 percent) stated "the bite of sandfly."

A highly statistically significant relationship found between Knowledge level regarding Kala Azar and socio- demographic characteristics like sex, religion and caste with p value less than 0.01 and with age structure (p<0.05). On correlating the Knowledge level with socio-economic characteristics it is found that type of house and occupational house were highly significant with p vale less than 0.01.

Kala Azar was thought to be preventable disease by almost 70 percent of the respondents. Their attitude regarding care of patients was quite satisfactory as about 70 percent were for medicines and rest 30 percent for diet precautions.

The DDT spray can control the disease was believed by about 34 percent of the subjects, while rest 66 percent had wrong impression for DDT spraying.

Out of 70 percent of the households which were sprayed last year, about 82 percent did not know the reason of spraying. Majority (85 percent) of them were not happy with the spraying services, about 50 percent stated the reason that DDT spraying excites new insects or mosquitoes.

Overall, these findings suggest ineffective information, education, and communication efforts of the public health system and other responsible agencies. Even after such prolonged and incessant disease transmission in the area, this lack of awareness about kala-azar, indifferent attitudes, and incorrect practices are indicators of poor commitment of the health policy planners for the disease. Even if health care facilities were comprehensive, acceptable, and accessible, the purpose would not be achieved if the community itself is not involved in the program.

It is vital to know the extent of awareness and related preventive attitude and practices of a community and to improve it to a satisfactory level before launching any control program to get the maximum support from the community. The respondent's poor awareness about symptoms, mode of transmission, preventive measures of the disease, and breeding sites of sandflies emphasizes the need for rethinking remedial action. It has

already been documented by various studies that health education would offer promise of influencing individuals to adopt preventive measures.

Thus to avert the spreading of disease in newer areas which were non-endemic of kala-azar in Bihar earlier this study results emphasize the need for increasing kala-azar awareness activities through involving the health workers, and the school in the community on a massive scale. The above observations may be true only for the study population because of convenience sample and cannot be generalized to other populations belonging to different socio-economic or cultural backgrounds.

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1 Introduction

1.1 Background

Visceral leishmaniasis (VL), popularly known as kala-azar (KA) in Hindi, is caused by a protozoa, *Leishmania donovani,* and transmitted by the female sandfly *Phlebotomus argentipes* in India. It is endemic in 62 countries, with ~200 million people at risk.[1] It is estimated that annually ~500,000 cases of VL occur,[1,2] with a prevalence of 2.5 million.[3] More than 90% of VL cases occur in five countries: India, Bangladesh, Nepal, Sudan, and Brazil.[2,4] In WHO's South-East Asia Region, about 147 million people in three countries (Bangladesh, India and Nepal) are at risk of kala-azar.It is a dreaded disease, and if left untreated, it is fatal. It is also estimated that in 2003, the worldwide deaths caused by VL was 51,000.[5] The disease occurs predominantly in the poor and marginalized communities. Nearly 2.4 million disability-adjusted life years (DALYs) are lost each year due to kala-azar globally. The SEA Region accounts for the loss of about 400 000 DALYs The economic burden of the disease in the affected areas of the Region is large even though precise estimates are not available.

The disease has been endemic in India for a long time and the earliest outbreaks occurred in the early nineteenth century. Kala-azar used to occur in cyclical epidemics at the intervals of 10-15 years.

Signs and Symptoms of Kala Azar:

- Recurrent fever intermittent or remittent with often double rise
- loss of appetite, pallor and weight loss with progressive emaciation
- weakness
- Splenomegaly – spleen enlarges rapidly to massive enlargement, usually soft and nontender
- Liver – enlargement not to the extent of spleen, soft, smooth surface, sharp edge
- Lymphadenopathy – not very common in India
- Skin – dry, thin and scaly and hair may be lost. Light coloured persons show grayish discolouration of the skin of hands, feet, abdomen and face which gives the Indian name Kala-azar meaning "Black fever"
- Anaemia – develops rapidly

Worldwide, 200 million people are at risk, and an estimated 500,000 new cases occur annually. According to WHO, More than 90% of kala-azar cases reported worldwide occurs in Bangladesh, Northeast India, Nepal, Sudan and Northeast Brazil and more than 60% of the world's VL cases are reported from India, Nepal and Bangladesh alone.

Out of the total cases of kala-azar reported annually in India, 90% of the cases are reported from Bihar alone. Focal and sporadic cases of kala-azar have been occurring regularly in many districts of Bihar since 1977. Presently, 33 out of 37 districts in Bihar are endemic at various level and nearly 67.5 million people are at risk of this disease that pose a major public health concern in Bihar, India.

According to GoB, Muzaffarpur has the leading case load of Kala Azar in 2013, with a total of 1061 cases reported.

Sr No	Year	Population	Number of Cases	Case detection rate	Death	Case fatality rate per 100
1	2008	4431135	3679	0.083	38	1.03
2	2009	4544754	2329	0.051	11	0.47
3	2010	4661287	2573	0.055	22	0.85
4	2011	4778610	2531	0.052	18	0.71
5	2012	4903393	1618	0.032	06	0.37
6	2013	5054642	1061	0.020	04	0.37

Epidemiological trend of the District Muzaffarpur of last 5 years

Table 1.1 Case Load yearwise

(Source: GoB, 2014)

Muzaffarpur has 16 blocks with a population of around 5 million. Kurhani is one of the endemic block of Muzaffarpur, Accoeding to last year trend, the case load of Kurhani is 99 after Paroo (138) and Sahebganj (117).
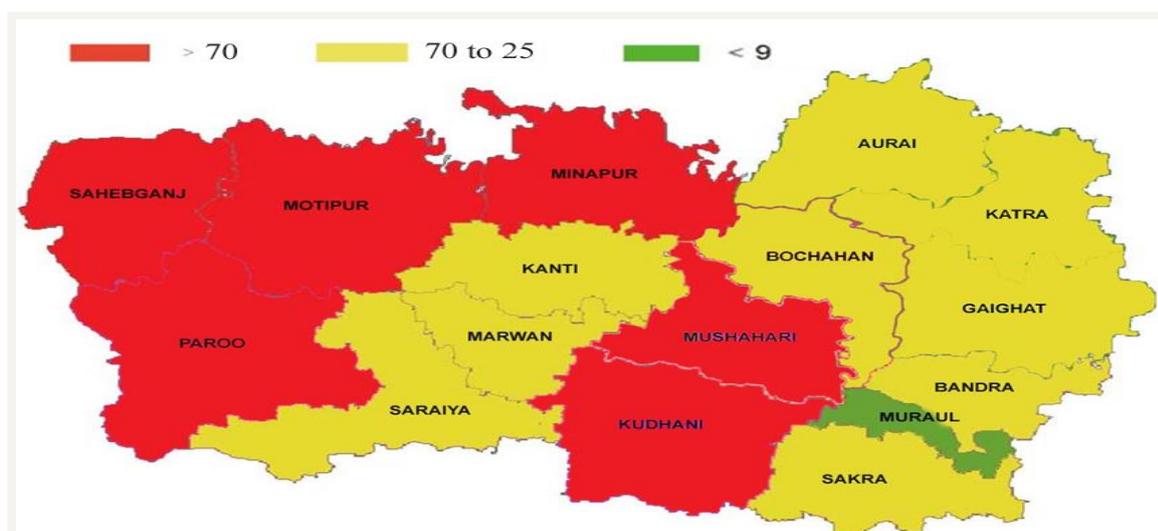

Fig.1.1: Case Load block wise

(Source: GoB, 2014)

Concerned with the increasing problem of Kala-azar in the country, Govt. of India launched a centrally sponsored Kala-azar Control Programme in 1990-91. The programme implementation was intensified during 1991 which brought about a reduction of morbidity and mortality due to kala-azar in Bihar and West Bengal.The government of India aspires to eliminate VL by 2010 from India.[9] The programme implementation was not however, sustained by the concerned State governments resulting in a slower pace of decline in kala-azar incidence in the years following. The Expert Committee on Kala-azar under the chairmanship of Director General of Health Services, Government of India reviewed Kala-azar Control Programme in the year 2000 and recommended feasibility of its elimination from the country. The National Health Policy. 2002 also endorsed the feasibility of elimination and envisaged Kala-azar Elimination by 2010. The Kala-azar Control Programme operates with a mix of strategies which include diagnosis and treatment, active and passive case detection, vector control, behavioural change communication, capacity building and monitoring and evaluation. As may be evident from the post experience, insecticide spraying is an extremely important intervention in achieving kala-azar elimination

For the success of prevention and control programs of any disease, the most important prerequisite is community participation. Cooperation of the affected population is essential in the implementation and use of program activities. Program implementers need to understand the disease-related knowledge, attitude, and practices (KAP) of the community, because these are the important determinants of community participation. There are no data from India focusing on these aspects, and thus this study presents the information on KAP related to Kala-azar in India.

1.2 LITERATURE REVIEW

Various literature were reviewed, some of them are mentioned:

1. The Indian Government aspires to eliminate Kala-azar by 2010. Success of any disease control program depends on community participation, and there is no published data about the knowledge, attitude, and practices of the community about Kala-azar in endemic regions of India. For this knowledge, attitude, and practices (KAP) study, the heads of 3,968 households in a rural area, consisting of 26,444 populations, were interviewed using a pre-tested, semi-structured schedule. Most of the study subjects (97.4%) were aware of Kala-azar. Fever (71.3%) and weight loss (30.5%) were the most commonly known symptoms. The infectious nature of the disease was known to 39.9%. The majority believed that the disease spreads by mosquito bites (72.8%). For

63.6%, the breeding site of the vector was garbage collection. Only 23.6% preferred the public health sector for treatment, and 55.9% believed that facilities at primary health centers are not adequate. Poor knowledge of the study subjects about the disease and breeding sites of the vector underscores the need for health educational campaigns if the elimination program is to succeed.

2. This study was undertaken to assess the extent of community awareness and related practices about kala-azar undertaken by them to control the disease, in an highly endemic focus of Bihar, India. A household-based cross-sectional knowledge, attitude, and practices (KAP) survey consisting of quantitative components on knowledge, attitude, and practices concerning kala-azar was administered to heads-of-household through a semi-structured questionnaire. Data indicated that 61% respondents were illiterate, 4% had correct knowledge that sandfly bites caused kala-azar, 26% do not know any specific transmission agents for kala-azar. A majority (72%) of respondents were not able to recognize sandfly, 33% had no specific knowledge about the symptoms. All of them (100%) believed that this disease could affect his or her family income. Nearly all (95%) were positive that the kala-azar cases could be reduced with implementation of proper health measures. A few (11%) suggested isolation of patients to avoid contacting kalaazar while a high proportion (93%) of respondents favored specific allopathic medicine, and a majority (72%) favored the utilization of the services offered by primary health centers or government hospitals. Just over half (66%) of the respondents were not using any prevention measures to avoid contacting disease. These results could prove to be useful for health planners in developing suitable control strategies.

3. Reported are the results of a study of the knowledge, attitudes and practices (KAP) about kala-azar of the inhabitants of two villages (Titaria and Haraincha) situated in terai (plain) areas of Nepal. The villagers had poor knowledge about the transmission of kala-azar, with most villagers perceiving that mosquitos, instead of sandflies, were responsible for transmission of the infection. Most also failed to recognize the common symptoms of kala-azar. The majority of the respondents, 78.9% in Titaria and 48.4% in Haraincha, were aware that the condition can be treated, while fewer than 2% believed

that it cannot be treated at all. More than 58% of villagers in Titaria and 36.8% in Haraincha used bednets. The residents of both villages were highly responsive to a programme to spray houses with insecticides. Fewer than 5% of respondents slept outdoors in farm outhouses and these individuals did not take any personal vector control measures. The results of this study show the importance of understanding the beliefs and practices of communities in the successful planning and implementation of kala-azar control activities in Nepal.

4. The observations made by Alvar J *et al* (2006) in his article Leishmaniasis and poverty. The study found the majority (70%) of the respondents lived in thatched or mud plastered houses, were engaged in agricultural labouring, and 60.2% of them were illiterate. These findings suggest the poor living condition of study villages. This could be one of the important factors responsible for the increased burden of kala-azar in Bihar.

2   Research Methodology

2.1 OBJECTIVES OF THE STUDY

To assess the extent of community awareness and related practices about kala-azar undertaken by them to control the disease

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Specifically this study aims to:
- To assess the level of knowledge of the community regarding Kala azar
- To understand the attitude of the community towards the disease.
- To understand health seeking behaviour of the community regarding kala azar.
- To assess the factors (socio-economic, behavior etc.) related to KAP regarding KA

2.2 STUDY AREA

The study was carried out in Mohanpur village of Kurhani block of Muzaffarpur district in Bihar. Village selection was done by purposive sampling as Mohanpur is the most endemic village of Kurhani block.

2.3 STUDY DESIGN

The study combined various quantitative research methods using descriptive cross sectional survey across Mohanpur village, Kurhani, Muzaffarpur.

2.4 SAMPLING PLAN

Stratified random sampling was used to select respondents for individual interview. A total of 166 households from Mohanpur village, Kurhani were picked up for the study. For the current study it was decided to interview of households head and in case of absence of head of household, next contact person was interviewed.

2.5 TOOLS FOR DATA COLLECTION

Quantitative data collection was administered by a semi-structured interview schedule. **This method was chosen because it is useful to correlate the research questions with the objective**

2.6 PRE TESTING

Before finalizing the questionnaire, pre-testing of a draft questionnaire was done in Deoria village of Paroo block, Muzaffarpur..

2.7 DATA COLLECTION

Quantitative data was collected using a structured questionnaire by a door to door survey. Each interview took an average of 10-15 mintues. . In addition to gathering background social and demographic information, the interviews provided insight into the following:-

- Household characteristics
- Economic characteristics of the household
- Knowledge level of the respondents regarding Kala azar
- Preventive measures taken by the respondents.
- Attitude of the respondents regarding kala azar and spray squads
- Treatment seeking pattern of the respondents related to kala azar

2.8 DATA ANALYSIS

The data was entered into Excel spreadsheets and was analyzed using SPSS 16.0 package. Descriptive statistics such as frequency distributions, cross tabulations, simple percentages and indices of central tendency such as mean and median were employed. Chi square test was used to determine whether the associations are statistically significant or not.

2.9 ETHICAL CONSIDERATION

Informed consent for conducting interviews was obtained from all the participants of the study. Respondents were explained that the information collected from them will be used for research purposes only and that the confidentiality of data would be strictly maintained.

2.10 LIMITATION OF THE STUDY

Although this research was carefully prepared, I am still aware of its limitations and shortcomings.

- Firstly, the time span for the study (2 months) is not enough to observe and analyze all the findings properly.

- Secondly, Due to lack of time and resources, could not use qualitative research methodology.
- Third shortcoming is small sample size due to lack of time and resources.
- Differences in definitions of key indicators, sampling frames, and survey instruments in different data sources limit comparability between studies and interpretation.
- Lastly, the absence of head of household at home limited our study findings.

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3 Profile Of Respondents

3.1 DEMOGRAPHIC PROFILE OF RESPONDENTS

Majority of the respondents (69 percent) are in the age group of 41-60 years. Almost 55 percent of the respondents are female. Regarding the educational profile of the respondents, 68 percent of them are illiterate. Rest 32 percent have completed their schooling till primary or secondary education.

Age of the respondent (years)	%age
26-40	30.7
41-60	69.3
Sex of respondent	
Male	44.6
Female	55.4
Educational Status	
Illiterate	68.1
Primary/ secondary	31.9

Table-3.1: Demographic charcterictics

Muslims/Mushahiri community constitute around 61 percent of the total respondents. A very high proportion of respondents (72 percent) belong to OBCs or mahadalit category.
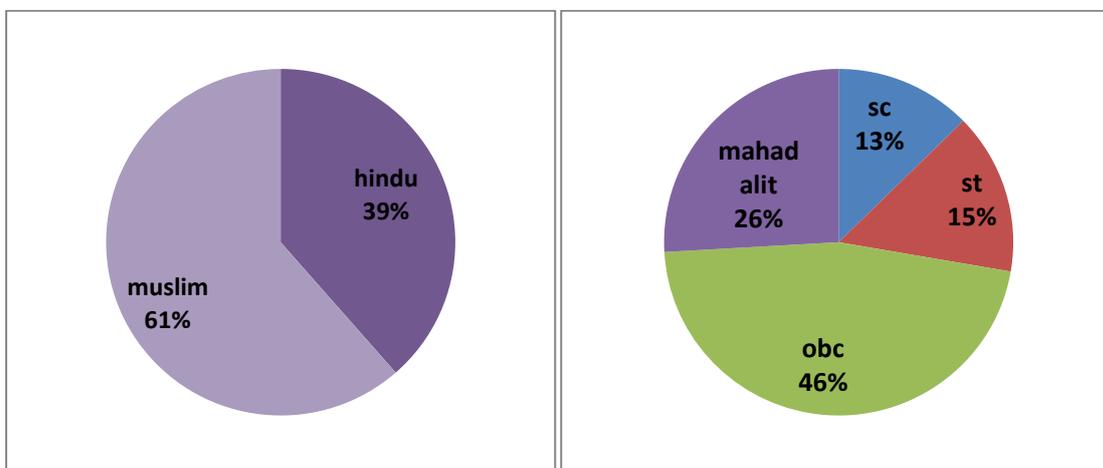
Fig.3.1: Percentage showing religion and caste distribution

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3.2 SOCIO-ECONOMIC PROFILE OF RESPONDENTS

The majority of the sample households have their own houses (94.2 percent). Most of them work in the informal sector and depend on a cash economy. The main occupations of the study population are daily wage labourers or agricultural workers.
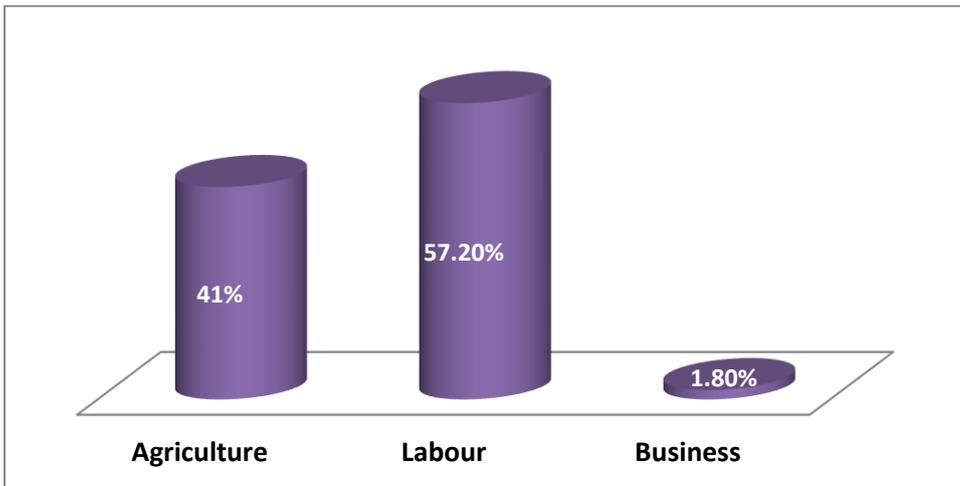
Fig.3.2 Main occupation of the households

Almost 86 percent of the respondents live in Kuccha houses and rest 14 percent have semi pucca houses.

4   Knowledge regarding Kala Azar

The majority of the respondents (63 percent) had not heard about Kala Azar which is a matter of great concern. Out of the rest 37 percent who had heard about Kala Azar almost 98 percent cited "mosquito bite" as the most common cause of Kala Azar, while only a negligible proportion (2 percent) stated "the bite of sandfly."
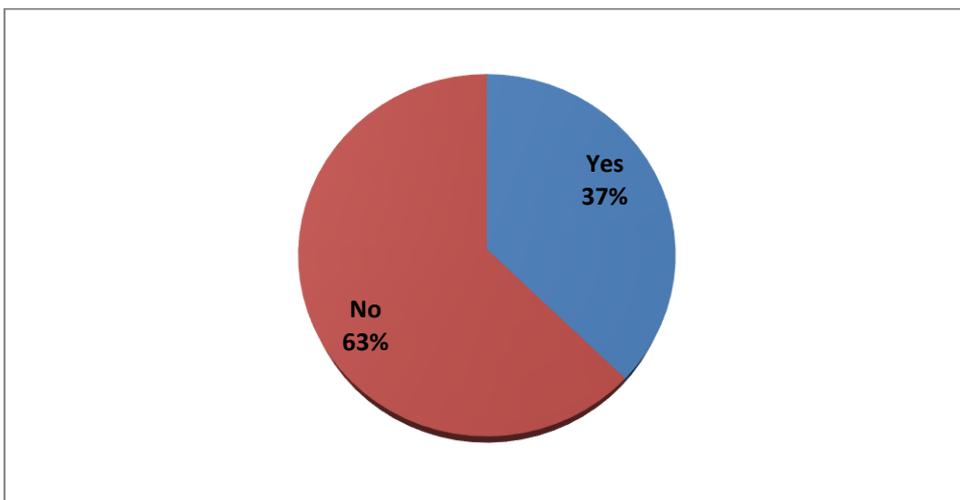
Fig.4.1: Showing percentage of respondents having knowledge about kala azar

With regard to clinical presentation, fever was the most common and frequently mentioned sign symptom stated by almost all of the respondents. Regarding awareness of the breeding place of the vector, majority (97 percent) responded "dirty places" as the most common breeding place.

About 34 percent of the respondents who had heard about Kala Azar stated that someone in their family in the past had been diagnosed as Kala Azar.

A highly statistically significant relationship found between Knowledge level regarding Kala Azar and socio- demographic characteristics like sex, religion and caste with p value less than 0.01 and with age structure ($p < 0.05$).

	yes	no	Total(N)	z^2 value
Age of the respondent (years)				**39.400***
26-40	**2**	**98**	**51**	
41-60	**53**	**47**	**115**	
Sex of respondent				**4.592**
Male	**28.4**	**71.6**	**74**	
Female	**44.6**	**55.4**	**92**	
Religion				**6.788***
Hindu	**25**	**75**	**64**	
Muslim/Mushahar	**45.1**	**54.9**	**102**	
Caste				**40.655***
SC	**95.2**	**4.8**	**21**	
ST	**12**	**88**	**25**	
OBC	**27.3**	**72.7**	**77**	
Mahadalit	**41.9**	**58.1**	**43**	
Educational Status				**1.760**
Illiterate	**36.3**	**63.7**	**113**	
Primary/ secondary	**38.5**	**61.5**	**52**	

Table-4.1: Awareness of kala azar with Socio-demographic characteristics

On correlating the Knowledge level with socio-economic characteristics it is found that type of house and occupational house were highly significant with p vale less than 0.01.

	Yes	No	Total (N)	z^2 value
Type of House				**30.226***
Kuchha	**28.9**	**71.1**	**142**	
Semi Pucca	**87**	**13**	**23**	
Pucca	**1**	**0**	**100**	
Occupational Status				**29.894***
Agriculture	**61.8**	**38.2**	**68**	
Labour	**21.1**	**78.9**	**95**	
Business	**0**	**100**	**3**	

Table-4.2: Awareness of kala azar with socio-economic characteristics

5   Prevention and Treatment Seeking Behavior

Concerning attitudes about control of disease nearly 68 percent considered Kala Azar as a killer disease if left untreated. On being asked about the seriousness of the disease majority (68 percent) termed that Kala Azar is a very serious disease as compared to malaria whereas rest 32 percent stated it as equally serious as malaria.

Kala Azar was thought to be preventable disease by almost 70 percent of the respondents. Their attitude regarding care of patients was quite satisfactory as about 70 percent were for medicines and rest 30 percent for diet precautions.
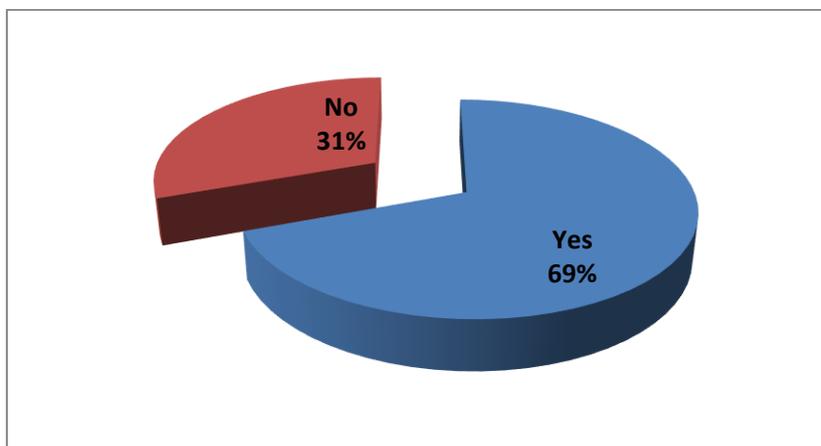
Fig: 5.1 Percentage showing kala azar is a killer disease

On being asked about the utilization of health services, government hospitals/PHCs were the first choices. Majority (66 percent) of the respondents did not know that diagnosis and treatment of Kala Azar is available free of cost at every PHCs.

The prevention measures practiced by the respondents showed that 50 percent of the respondents did not use any protective measure for prevention and out of rest 50 percent, almost 60 percent had mosquito nets as a preventive measure.
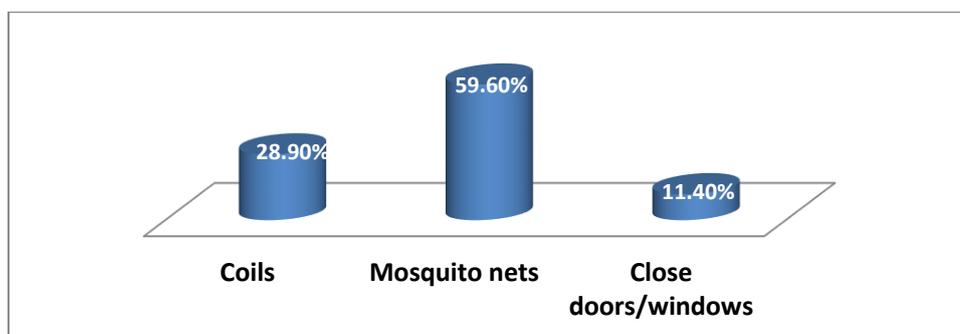
Fig-5.2: Various preventive measures

6   Spraying and Kala Azar control program

The DDT spray can control the disease was believed by about 34 percent of the subjects, while rest 66 percent had wrong impression for DDT spraying.

Out of 70 percent of the households which were sprayed last year, about 82 percent did not know the reason of spraying. Majority (85 percent) of them were not happy with the spraying services, about 50 percent stated the reason that DDT spraying excites new insects or mosquitoes.
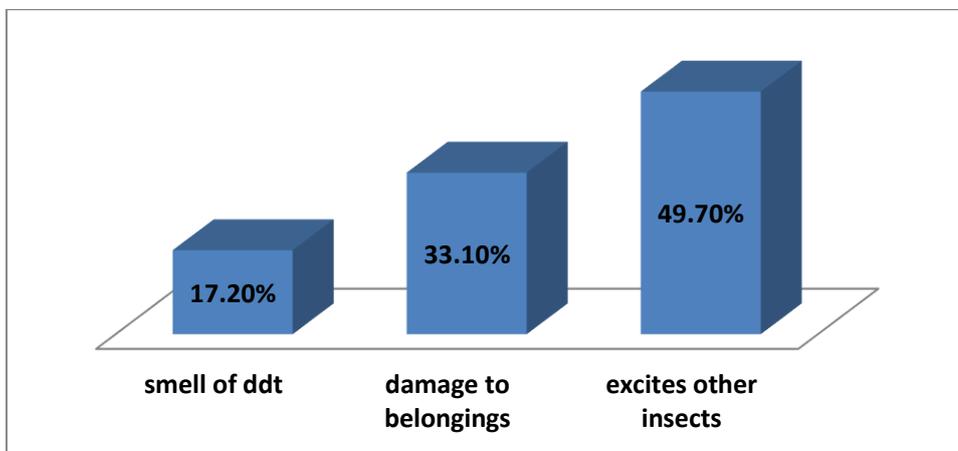
Fig-6.1: Reasons for not spraying

On the basis of their past experiences or some knowledge provided by health workers, around 66 percent of the respondents were ready to allow DDT spray to be done again, while rest 34 percent still not convinced.
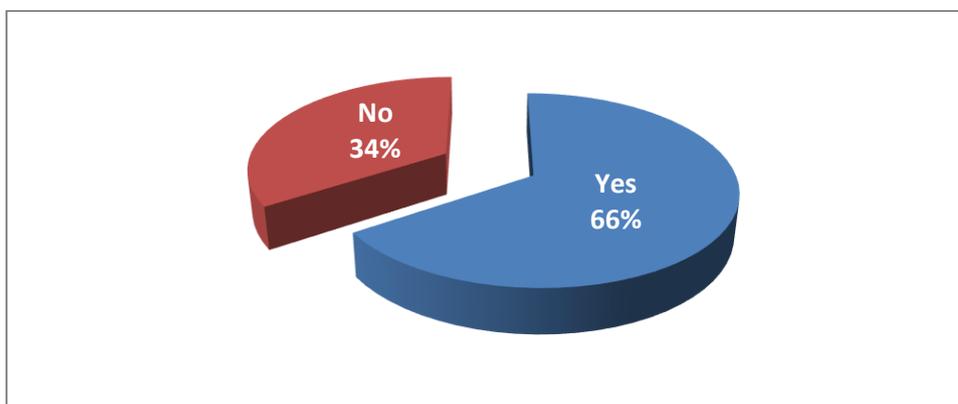
Fig- 6.2 Percentage of respondents who will allow spray next time

7 Discussion

Kala-azar is a major public health problem in Bihar, and its prevention and control are priorities. Presently, vector borne disease control programs primarily rely on controlling the vector; diagnosis and treatment have often been overlooked the importance for the target population (Ruebush *et al*, 1992). In this study, heads of the households were selected as the study subjects because they have the decision- making capacity for the household. Kala-azar control activities presently restricted to vector control, in the form of DDT spraying, and treatment of kala-azar cases. But, unfortunately irregular DDT spraying and irregular drug availability at peripheral level have been reported (Kumar *et al*, 2004; Mondal *et al*, 2009).

This study found the majority (86 percent) of the respondents lived in thatched or mud plastered houses, were engaged in agricultural, labouring, and 68.2% of them were illiterate. These findings suggest the poor living condition of study villages. This could be one of the important factors responsible for the increased burden of kala-azar in Bihar. Similar observations were made by Alvar J *et al* (2006) in his article Leishmaniasis and poverty. KAP studies on malaria suggest that education has a significant role to play in enhancing knowledge (Panda *et al*, 2000; Sharma *et al*, 2001, 2003).
Muzaffarpur is one of the districts with the consistently highest endemicity in the state for more than 30 years and can be considered to be the epicentre of the kala-azar epidemic in Bihar (Singh *et al*, 2006a), even then awareness level is not satisfactory, only 37.3 percent.

Our data revealed that generally the majority (98 percent) were not having an in depth awareness about the transmission of kala-azar. These findings were identical to another study conducted in Muzaffarpur (Singh *et al*, 2006a), but they are in contrast to another study results (Mondal *et al*, 2009). It is important for the community to know the breeding sites and habitat as a preventive measure to reduce the chance of vector-human contact. Our findings were again identical with other studies (Singh *et al*, 2006a; Mondal *et al*, 2009).

Over all the above findings were consistentwith earlier conducted studies on malaria, filariasis, dengue, and kala-azar in different parts of the world (Ramaiah *et al*, 1996; Koirala *et al*, 1998; Ahluwalia *et al*, 2003, 2004; Tyagi *et al*, 2005; Matta *et al*, 2004, 2006; Acharya *et al*, 2005; Singh *et al*, 2006a). The difficulty our respondents had in identifying the mode of transmission was important, because, if sandflies are not perceived to be important in the transmission of kala-azar, they may not act appropriately to protect themselves against their bites. Their awareness needs to be enhanced because the above-mentioned studies have suggested that, if villagers do not perceive mosquitoes to be responsible for disease such as malaria, they do not take sufficient measures to protect themselves against the vector.

The present study findings suggest that there has been insufficient impact of the decade-long Malaria/Kala-azar Control Program in the area. Awareness of transmission, vector,

and symptoms about kala-azar was poor, which strongly suggest that absence of proper kala-azar
health education program in the study area. Despite such poor levels of knowledge about the disease; surprisingly, a good proportion (58%) correctly pointed out that kala-azar was not a contagious disease. There may be several explanations for this, but one possible explanation
may be their long experience in kala-azar endemic areas. Most of the villagers assumed that they have seen the families in which only one member had suffered from kala-azar, but the rest did not suffer.

A wide gap was seen between awareness and related attitude. Almost all our respondent considered kala-azar to be a serious condition that "drained" family resources, but could be controlled by community efforts. Similar findings were found in awareness/ KAP studies on various diseases (Ramaiah *et al*, 1996; Koirala *et al*, 1998; Ahluwalia *et al*, 2003; Matta *et al*, 2004, 2006; Acharya *et al*, 2005; Tyagi *et al*, 2005; Rijal *et al*, 2006; Singh *et al*, 2006a; Mondal *et al*, 2009). These similar findings suggest that respondents' strong positive attitude towards kala-azar, its seriousness, and such a strong attitude could be from their experiences in endemic areas.

The respondents did not indicate that they frequently practiced prevention measures because the majority (66%) did not know about prevention measures, and only few (20%) used mosquito net as a prevention measure. These findings were not consistent with similar studies conducted in the neighboring country, Nepal, which found that virtually no one knew how the disease could be prevented (Koirala *et al*, 1998; Singh *et al*, 2006a).

Our study found that only 17.1% consider DDT spraying as prevention measure, which was not consistent with an earlier study in Nepal where respondents were highly responsive to DDT spraying program (Koirala *et al*, 1998). The main reason respondents gave for allowing their houses to be sprayed with insecticide in Nepal was the resulting reduction in the number of mosquitoes and sandflies. A possible explanation for our study results may be loss of faith in DDT spraying due to its poor quality that they judged by the reduction in mosquitoes and sandflies bites or the resulting reduction in the number of mosquitoes and sandflies in the household. The respondents, who favoured DDT spraying as precautionary measure to control kala-azar, surprisingly, were not aware that DDT or insecticides also kill sandflies. Therefore, the villagers need to be informed about the benefits and risk of DDT spraying, which would probably encourage other villagers also to have their houses sprayed.

Overall, these findings suggest ineffective information, education, and communication efforts of the public health system and other responsible agencies. Even after such prolonged and incessant disease transmission in the area, this lack of awareness about kala-azar, indifferent attitudes, and incorrect practices are indicators of poor commitment of the health policy planners for the disease. Even if health care facilities were comprehensive, acceptable, and accessible, the purpose would not be achieved if the community itself is not involved in the program.

It is vital to know the extent of awareness and related preventive attitude and practices of a community and to improve it to a satisfactory level before launching any control program to
get the maximum support from the community. The respondent's poor awareness about symptoms, mode of transmission, preventive measures of the disease, and breeding sites of sandflies emphasizes the need for rethinking remedial action. It has already been documented by various studies that health education would offer promise of influencing individuals to adopt preventive measures (Singh *et al*, 1998; Yadav *et al*, 1999).

Thus to avert the spreading of disease in newer areas which were non-endemic of kala-azar in Bihar earlier this study results emphasize the need for increasing kala-azar awareness activities through involving the health workers, and the school in the community on a massive scale. The above observations may be true only for the study population because of convenience sample and cannot be generalized to other populations belonging to different socio-economic or cultural backgrounds.

7   Recommendations

The recommendations can be organized into two sets. The first of these are concerned with the health system as a whole, which needs to be revamped and the second set is about community based interventions.

Interventions at the Health System level:-

1. To improve the physical availability and accountability of the public health care providers.
2. To organize regular camps or workshops to educate the people regarding their health and other determinants related to health, to know their attitude towards health and to modify their behavior related to various traditions and superstitions
3. To form a supervision advisory committee at the state level including private sector to improve the efficiency in terms of efficiency.
4. Incentivization of the health/field workers like ASHA for their more involvement at the field level.
5. Effective IEC, including proper interpersonal communication at each level of healthcare delivery system

Community level interventions:-

1. Health education camps, health fares and street plays to increase community awareness and participation.
2. Effective utilization of various platforms like ASHA days, ANM meetings and HSC meetings to spread awareness.
3. Involving the local leaders and other effective personnels.
4. Proper IEC at community level like involvement of local traditions.
5. School health program: for increasing knowledge regarding Kala Azar and its prevention
6. Local knowledge camps, or diagnostic camps for Kala azar.
7. Continued and strengthened behavioral change communication and social mobilization related activities.

Thus to avert the spreading of disease to areas that are non-endemic for kala-azar or to decrease its incidence, the results of this study emphasize the need for increasing awareness activities through the involvement of various stakeholders coming together for a common objective of Kala azar elimination.

Annexure

Table-1: Socio-Demographic Characteristics of respondent

	Total(%)	N (166)
Age of the respondent (years)		
26-40	30.7	51
41-60	69.3	115
Sex of respondent		
Male	44.6	74
Female	55.4	92
Religion		
Hindu	38.6	64
Muslim/Mushahar	61.4	102
Caste		
SC	21	12.7
ST	25	15.1
OBC	77	46.4
Mahadalit	43	25.9
Educational Status		
Illiterate	68.1	113
Primary/ secondary	31.9	53
Type of House		
Kuchha	85.5	142
Semi Pucca	13.9	23
Pucca	.6	1
Occupational Status		
Agriculture	41.0	68
Labour	57.2	95
Business	1.8	3

Table-2: Knowledge of respondent regarding Kala Azar

	Total(%)	N
Heard about kala azar		
Yes	37.3	62(166)
No	62.7	104
Source of information regarding kala azar		
Family		21(62)
Health facility		21
Health workers		20
Any household member suffered from kala azar		
Yes	33.9	21
No	66.1	41
Most common symptom of kala azar		
Fever	100	62
Transmission of kala azar		

Mosquito bites	98.4	61
Sand fly bites	1.6	1
Breeding place of sand fly		
Dirty places/garbage dumps	96.8	60
Damp and dark places	1.6	1
Don't know	1.6	1
Timing of bite of sand fly		
During night	3.2	2
Don't know	96.8	60
Kala Azar can be transmitted from one person to another		
No	30.6	19
Don't know	69.4	43
Kala Azar can kill if left untreated		
Yes	67.7	42
Don't know	32.3	20

Table-3: Prevention and Treatment Seeking Behaviour

	Total(%)	N
Kala Azar is a serious disease(compared to malaria)		
Yes	67.7	42
Equally serious	32.3	20
Choice of health service for the treatment of kala azar		
PHC/govt hospitals	100	62
Know that diagnosis and treatment of kala azar is done free of cost in the block PHC		
Yes	33.9	21
No	66.1	41
Facilities at PHC are adequate to manage Kala Azar Cases		
No	67.7	42
Partially	32.3	20
Measures to protect against kala azar		
Medicines	69.4	43
Diet precaution	30.6	19
Complete cure of kala azar is possible		
Yes	100	62
Kala Azar can be prevented		
Yes	69.4	43
No	30.6	19
Usage of any protective measures to guard against kala azar infection		
Yes	50	31
No	50	31
Most common method used by you for personal protection		
Coils	28.9	48
mosquito nets	59.6	99

		11.4	19
close doors/windows		11.4	19
Sleeping Habit			
Inside without nets		28.9	48
Inside with nets		59.6	99
Outside without nets		11.4	19

Table-4: Spraying and Kala Azar Control Program

	Total(%)	N
Kala Azar can be controlled by DDT spraying		
Yes	33.9	21
No	66.1	41
Don' Know		
House sprayed last year		
Yes	69.3	115
No	30.7	51
Rooms used for sleeping sprayed		
Yes	75.4	86
No	24.6	29
Spraymen explained the reason of spraying		
Yes	18.3	21
No	81.7	94
Happy with the spraying service		
Yes	15	21
No	85	119
If not, then why		
smell of ddt	17.2	25
damage to belongings	33.1	48
excites other insects	49.7	72
Allow DDT spraying to be done again		
Yes	65.7	109
No	34.3	57

Table-5: Knowledge regarding kala azar by socio-demographic factors

	yes	no	Total(N)	x^2 value
Age of the respondent (years)				**39.400*****
26-40	**2**	98	**51**	
41-60	**53**	47	**115**	
Sex of respondent				**4.592****
Male	**28.4**	**71.6**	**74**	
Female	**44.6**	**55.4**	**92**	
Religion				**6.788*****

40

Hindu	25	75	64	
Muslim/Mushahar	45.1	54.9	102	
Caste				**40.655***
SC	95.2	4.8	21	
ST	12	88	25	
OBC	27.3	72.7	77	
Mahadalit	41.9	58.1	43	
Educational Status				**1.760**
Illiterate	36.3	63.7	113	
Primary/ secondary	38.5	61.5	52	
Type of House				**30.226***
Kuchha	28.9	71.1	142	
Semi Pucca	87	13	23	
Pucca	1	0	100	
Occupational Status				**29.894***
Agriculture	61.8	38.2	68	
Labour	21.1	78.9	95	
Business	0	100	3	

Knowledge Attitudes and Practice of Community of Kala Azar Control Activities in Muzaffarpur District, Bihar

Informed consent : I would like to thank you for taking the time to meet me. My name is Dr Ninkush Aggarwal. I would like to talk to you about your knowledge on Kala Azar. There are no direct benefits for you a part of this research, However your contribution will help the kala azar control program and the department of health to to design and develop appropriate information resources to help communities effectively recognize signs and symptoms of kala azar and take appropriate action when suspecting infection. The interview should take about 10 minutes. The responses will be kept confidential. This means that the interview responses will be shared only with the research team and we will ensure that any information that we include in our report does not identify you as the respondent. Remember, you don't have to talk about anything that you don't want to and you can end the interview at any time.

Do you have any questions about what I just explained?

Are you willing to participate in the interview?

Block	
Sub center	
Panchayat/Village	
Date of Interview	
Duration of interview (in minutes)	

Section 1 – Background Characteristics			
Q. NO.	**QUESTIONS AND FILTERS**	**CODING CATEGORIES**	
1	Name of the Respondent		
2	How old are you? (Age in completed years)		
3	Sex of the Respondent	Male	1
		Female	2
4	Name of the Household Head		
5	Year of Residence	< 1 year	
		1	
		1-2 years 2	
		>3 years 3	
6	Religion of Household Head	Hindu	1
		Muslim	2
		Christian	3
		Others	4
7	Caste or Tribe	Scheduled Caste	1
		Scheduled tribes	2
		OBC	3
		Other	4
		EBC (Mahadalit)	5
		Don't know	98
8	Education (self)	No Education	1
		Upto grade 5(primary)	2

			Grade 6-9 (middle)	3	
			Grade 10-12 (secondary)	4	
			Graduate	5	
			Post Graduate	6	
			Don't know/ can't say	98	
8		Type of House	Kuchcha	1	
			Semi pucca	2	
			Pucca	3	
9		Occupational Status	Agriculture	1	
			Labour	2	
			Buisness	3	
			Services	4	
			Others	9	

Section 2 – Kala Azar information and IEC			
Q NO	QUESTIONS AND FILTERS	CODING CATEGORIES		SKIP TO
10	Have you heard about Kala Azar?	Yes No	1 2	
11	Where did you hear about kala azar?	Family Friend Poster/pamphlet Newspaper Radio Tv School Health facility Traditional Healer Community Meeting Health workers Others Specify	1 2 3 4 5 6 7 8 9 10 11 99	
12	Have you or any other member of your house suffered from Kala Azar?	Yes No Don't know	1 2 98	
13	What are the most common signs/symptoms of kala azar	Fever Pain in abdomen Enlarged stomach Loss of weight Anorexia Skin pigmentation Don't know Not applicable	1 2 3 4 5 6 98 99	
14	How is kala Azar Transmitted?	Mosquito bites House fly Sand fly bites Others specify Don't know Not applicable	1 2 3 4 98 99	
15	Where does the vector (sand fly) breed?	Dirty places/garbage dumps Cracks/Crevices in the	1 2 3	

		house	4	
		Thatched roof	5	
		Damp and dark places	6	
		Polluted water	98	
		Cattle sheds	99	
		Don't know		
		Not applicable		
16	When does the vector(sand fly) of kala azar bite?	During the day	1	
		During night	2	
		Any time	3	
		Don't know	98	
17	Can Kala Azar be transmitted from one person to another?	Yes	1	
		No	2	
		Don't know	98	
		Not applicable	99	
18	Do you think Kala Azar can kill you if untreated?	Yes	1	
		No	2	
		Don't know	98	
		Not applicable	99	

Section 3 – Treatment / Treatment seeking behavior				
Q NO	QUESTIONS AND FILTERS	CODING CATEGORIES		SKIP TO
19	Do you think kala azar is a serious disease? (compared to malaria)	Yes	1	
		No	2	
		Equally serious	3	
		Don't know	98	
20	What is the choice of health service you would use for the treatment of Kala Azar if you or a family member acquire symptoms?	PHC/govt hospitals	1	
		Private doctor	2	
		Traditional healer	3	
		Pharmacy	4	
		No where	5	
		Others specify	6	
		Don't know	98	
21	Do you know that diagnosis and treatment of kala azar is done free of cost in the block PHC?	Yes	1	
		No	2	
22	Do you think the facilities at PHC are adequate to manage Kala Azar Cases	Yes	1	
		No	2	
		Partially	3	
23	How is care of kala azar patient done/ Measures to protect against KA?	Medicines	1	
		Cleanliness	2	
		Bed net	3	
		Isolation of patient	4	
		Diet precaution	5	
		Others specify	6	
		Don't know	98	
24	Is complete cure of Kala Azar possible?	Yes	1	
		No	2	
		Don't know	98	

	Section 4 – Personal Protection			
Q NO	**QUESTIONS AND FILTERS**	**CODING CATEGORIES**		**SKIP TO**
25	Do you think kala azar can be prevented?	Yes No Don't know	1 2 98	
26	Do you use any protective measures to guard against kala azar infection?	Yes No Don't know Not applicable	1 2 98 99	
27	What is the most common method used by you for personal protection?	Use repellants Use Coils Use mosquito nets Close doors/windows Burn cowdung/leaves Nets in windows Others specify Not applicable	1 2 3 4 5 6 7 99	
28	Sleeping habits	Inside without nets Inside with nets Outside without nets Outside with nets	1 2 98 99	

	Section 5 – Spraying and Kala Azar Control Program			
Q NO	**QUESTIONS AND FILTERS**	**CODING CATEGORIES**		**SKIP TO**
29	Can Kala Azar be controlled by DDT spraying?	Yes No Don't know	1 2 98	
30	Was your house sprayed last year?	Yes No	1 2	If "2" skip to Q 35
31	Were the rooms used for sleeping sprayed?	Yes No Not applicable	1 2 99	
32	Did spray men explain the reasons for spraying?	Yes No Not applicable	1 2 99	
33	Are you happy with the spraying service?	Yes No Not applicable	1 2 99	If "1" skip to Q 35
34	Why are you not happy with the spraying?	Smell of DDT Discoloring of house walls Spraymen's conduct Damage to belongings Excites other insects (biting) Others specify	1 2 3 4 5 9	
35	Will you allow DDT spraying to be done in your house again?	Yes No	1 2	

Thank you for your time and valuable contribution. Do you have any question for me?

Signature of interviewer

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