

Awareness and Preventive Practice on Kala-Azar among the Community People of Morang, Nepal

Indira Adhikari (Poudel)¹, Prakriti Kiran Poudel², Anu Bajracharya³, Laxmi Paudyal⁴, Sagun Kharel⁵, Sandipa Niraula⁶

¹Associate Professor, Madan Bhandari Academy of Health Science, Nepal.

^{2,3,4,5,6}Madan Bhandari Academy of Health Science, Nepal.

ABSTRACT

Background

According to World Health Organization, an estimated 700000 to 1 million new cases and 26000 to 65000 deaths occur annually from Kala-azar. In the countries of South-East Asia region, Kala-azar occurs mainly in three countries- India, Bangladesh and Nepal. The disease occurs in agricultural villages where houses are frequently constructed with mud walls. Even people residing in endemic areas have poor practices for its prevention.

Methods

A descriptive cross-sectional study was conducted among 150 community people of Kathari Gaupalika, Morang. Simple Random sampling technique was used for the selection of three wards among seven wards, probability proportionate was used for the selection of the population from the ward. The desired sample was selected purposively. Data were collected from face-to-face interview techniques using a structured questionnaire. Statistical analysis was done by using SPSS 16 version.

Results

It is found that nearly two-thirds of the respondents (63.3%) had moderate awareness, more than one-fifth (22%) of the respondents had adequate awareness while (14.7%) of the respondents had inadequate awareness of Kala-azar. Similarly, more than half (55.3%) had moderate preventive practice, (25.3%) had inadequate preventive practice and nearly one-fifth (19.3%) had adequate preventive practice. The mean score for awareness and practice was 16.633 and 5.54 respectively.

Conclusion

The study was conducted to assess the level of awareness of Kala-azar. This concluded moderate awareness of respondents on Kala-azar which suggested that there is still a need to improve the awareness of the respondents particularly on its causative agent, preventive measures and complication. However, to improve their awareness to an adequate level, awareness-raising programs focusing on preventive practice should be conducted.

KEY WORDS: Awareness, Community People, Kala-azar, Knowledge, Practice

ARTICLE DETAILS

Published On:
12 June 2023

Available on:
<https://ijmscr.org/>

INTRODUCTION

A chronic and potentially fatal parasitic disease of the viscera (the internal organs, particularly the liver, spleen, bone marrow and lymph nodes) due to infection by the parasite called *Leishmania donovani*.¹ Globally, over 90 species of sand-fly are known to transmit leishmania parasites while around 70 animal species, including humans, have been found as natural reservoir hosts of leishmania parasites.²

It is found that the Visceral Leishmaniasis is one of the deadliest parasitic diseases in the world, which causes more

than 50000 human deaths each year and afflicts millions of people throughout South America, East Africa, South Asia and the Mediterranean Region.³ Kala-azar is also called black fever in India with various symptoms like fever, weight loss, hepatosplenomegaly, pancytopenia, etc.⁴ The leishmaniasis is considered to be endemic in 88 countries (16 developed & 72 developing countries) 90% of VL cases are found in Bangladesh, Brazil, India, Nepal and Sudan.⁵ According to WHO an estimated 700000 to 1 million new cases and 26000 to 65000 death occur annually. In 2017, more than 95% of new cases reported to WHO occurred in 10 countries which

Awareness and Preventive Practice on Kala-Azar among the Community People of Morang, Nepal

are Bangladesh, Brazil, China, Ethiopia, India, Kenya, Nepal, Somalia, South Sudan and Sudan. In the countries of South-East Asia region, kala-azar occurs mainly in three countries-India, Bangladesh and Nepal. Likewise in 2017 (271) cases were reported.⁶ The disease affects some of the poorest people on earth and is associated with malnutrition, population displacement, poor housing, a weak immune system and a lack of financial resources. It is linked to environmental changes such as deforestation, the building of dams, irrigation schemes, and urbanization.⁵ Awareness and behavioural practice of cutaneous leishmaniasis among hail population in, the kingdom of Saudi Arabia showed that 69.4% were aware of CL, and Depth knowledge was poor. Only 6.4% only had sufficient information and 5.4% thought sandfly could transmit the disease. Similarly, 65.1% thought that it can be treated by herbal preparation and 47.1% lived close to an animal shed.⁷

A study found that sleeping outside the room was a common practice. Animal rearing was observed among 91.7% of the participants. Cattle were kept adjacent to the living room (65.3%) and within the same room in 19.8%, allowing the increased risk of easy human–vector contact. and almost one-third (31.6%) had poor health practice.⁸ New kala-azar cases have been reported from 50 out of 77 districts in the country and 18 endemic districts are at risk of Kala-azar. The highest case reporting season for Nepal is seen in the months from June to October.⁶ the disease typically affects the poorest and most marginalized populations. Major risk factors of kala-azar include poor housing and domestic sanitation conditions, such as a lack of waste management or open sewerage, which may increase the breeding of sandflies and resting sites. Climate change has been implicated as one of the potential factors for the expanding endemicity of kala-azar in Nepal in recent years.⁹ A total of 220 cases were reported in 2071/2072 of which 80 % were from the 18 endemic districts. In 2073/2074, 151 Kala-azar cases were reported from Nepal and Morang there were 21 cases reported.¹⁰ In 2072/2073, 115 kala-azar cases were reported from Morang. Among them, 7 cases were reported from Katakari Gaupalika (DPHO Annual Report, 2072/2073). Similarly, in 2018 also 240 new cases were reported in Nepal.¹¹ A study conducted on Knowledge and Practice regarding kala-azar among the community people of Dangihat, Morang revealed that the majority of the respondents had inadequate knowledge 52.7% and average practice. From the findings, it can be concluded that only a few respondents correctly defined Kala-azar in the current study.¹²

MATERIAL AND METHODS

Study design, setting and Population

A community-based descriptive cross-sectional research design was used for this study to meet its objectives. This study was conducted at Katakari Gaupalika of Morang. The study population was Community peoples of wards no 1, 5 and 6.

Sampling Technique

The study setting was selected by using a probability sampling technique. Simple random sampling technique was used for the selection of 3 wards among 7 wards which were 1, 5 and 6. Proportionate probability sampling was used for the selection of the population from the selected ward. The population was selected purposively and study sample size was 150.

Instrumentation

The instrument for data collection was a structured interview schedule through a face-to-face interview method which was developed by the researcher herself reviewing the related literature and consulting with subject experts.

The questionnaires consist of 3 parts. **Part I-** Socio-demographic characteristics. **Part II-** Questions related to Knowledge on Kala- azar. **Part III-** Question related to preventive practice on Kala- azar. Knowledge questionnaires were from the definition, causative agent, signs and symptoms, breeding place, preventive measures, and complications of Kala-azar. The total score for the knowledge questionnaire was 27. Participants were given a score 1 for the correct answer for each question and a score 0 for each incorrect answer. The result scores were measured in three levels based on obtained mean score 16.63 and the standard deviation 2.23 from the results of the current study.

Level of Knowledge scoring:

Inadequate Knowledge= <14.4

Moderate Knowledge= 14.5-18.86

Adequate Knowledge= >18.87

Practice questionnaires were developed by using an observational checklist which consists of questionnaires like (the use of bed nets, presence of sufficient light inside room, house spray with insecticides, and animal shed 25 feet far from home). The total score for the practice questionnaire was 8. Participants were given a score 1 for correct practice and a score 0 for incorrect practice. The result scores were measured in three levels based on obtained mean score 5.54 and the standard deviation 1.334 from the result of the current study.

Level of Preventive Practice scoring

Inadequate Preventive Practice: <4.21

Moderate Preventive Practice: 4.22-6.87

Adequate Preventive Practice: >6.88

Inclusion criteria

Community people who were available at the time of data collection of age group (20-59) years & only one member from one family were taken.

Outcome variable

Find out awareness and preventive practices on kala-azar

Explanatory variables

Explanatory variables were age, gender, ethnicity, educational level, occupation and sources of information etc.

Awareness and Preventive Practice on Kala-Azar among the Community People of Morang, Nepal

Ethical committee approval

Ethical clearance was obtained from Manmohan Memorial Institute of Health Sciences (IRC) in Kathmandu Nepal. Data collection permission was obtained from the Katahari Gaupalika. The purpose of the study was explained to the participants. Verbal consent was taken from all respondents before the data collection. Privacy was maintained by using a code number for each respondent. Confidentiality was maintained by not disclosing the information to others and assured that the information will be used for study purposes only. Respondents were clearly explained that they have the choice to reject or discontinue the research study at any point during the study time. Confidentiality was maintained throughout the study and thereafter.

Questionnaire design

The content validity of the instrument was established by consultation with the research advisor and subject experts.

English questionnaire was translated into the local Nepali language to maintain simplicity and comprehensibility with the help of a language expert. Besides, pre-testing was done among 10% of the sample size in the non-study population (i.e., 15 community people of Gramthan Gaupalika Morang ward no 1). The Cronbach's alpha value was 0.76. After pre-testing some modifications were done to the questions which were confusing to the respondents.

Data management and statistical analysis

The collected data was checked, reviewed, filtered and organized for accuracy and completeness. Data was entered in SPSS version 16 for the process of analysis and interpretation in terms of descriptive statistics (frequency, percentage, mean and standard deviation) and chi-square, phi Cramer's V was used. The findings of the study were presented in tables.

RESULTS

Table 1. Socio-demographic Characteristics n=112

Variables	Frequency (n)	Percentage (%)
Age(in years)		
20-39	105	70
40-59	45	30
Gender		
Female	110	73.3
Male	40	26.7
Ethnicity		
Dalit	69	46.0
Janajati	41	27.3
Madhesi	36	24.0
Brahmin/Chhetri	4	2.7
Occupation		
Home Maker	91	60.7
Agriculture	38	25.3
Business	5	3.3
Service	1	7
Labour	8	5.3
Students	7	4.7
Education Status		
Literate	115	76.6
Illiterate	35	23.3
If literate(n=115)		
Basic level	94	81.7
Secondary level	20	17.39
University	1	0.91

Table no1 shows the socio-demographic characteristics of the respondents where nearly three-fourths (70%) of respondents belong to the age group 20-39 years. Similarly, 73.3% of the respondents were female.

Less than half (46%) of the respondents were dalit and three-fifth (60.7%) of the respondent's occupation was homemaker whereas the majority (76.6%) of the respondents were literate and more than three-fifth (62.7%) of the respondents are educated to basic level.

Awareness and Preventive Practice on Kala-Azar among the Community People of Morang, Nepal

Table 2. Respondents Awareness of the Meaning of Kala-azar n=150

Variable	Frequency(n)	Percentage (%)
Meaning of Kala-Azar*		
Airborne disease	24	16
Vector borne disease*	96	64
Disease transmitted by unclean hands and finger	30	20
Kala-Azar is a communicable disease*		
Yes*		
No	127	84.7
	23	50.3

Correct response*

Table no 2 shows that nearly two-thirds (64%) of the respondents correctly defined Kala-azar as a vector borne

disease. Whereas, majority (84.7%) of the respondent stated Kala-azar is a communicable disease.

Table 3. Respondent's Awareness of Causative agent, Signs and Symptoms and Spreading Season of Kala-azar n=150

Variables	Frequency(n)	Percentage (%)
Causative agent of Kala-Azar*		
Mosquito	144	96
Sandfly*	6	4
Signs and symptoms**		
Fever	149	99.3
Headache	114	76
Loss of appetite	76	50.7
Blackening of skin	99	66
Spreading season*		
Rainy season*	146	97.3
Winter season	4	2.7

Correct answer *, Multiple response **

Table no 3 revealed that the Knowledge of the respondents about the causative agent of Kala-azar was only 4% whereas the majority 96% of respondents were unknown regarding causative agent of Kala-azar . Furthermore, the sign and

symptoms of Kala-azar fever were the most frequently mentioned signs and symptoms of Kala-azar reported to be nearly cent per cent 99.3% and the least being loss of appetite 50.7%. Majority (97.3%) of the respondent correctly answered rainy season is the spreading season for kala-azar.

Table 4. Respondents Awareness of breeding place, Biting time of vector, Diagnosis and Treatment of Kala-azar n=150

Variables	Frequency (n)	Percentage (%)
Breeding place of vector**		
Cattle shed	102	68
Garbage collection site	113	75.3
Polluted water	95	63.3
Cracks and crevices in the home	74	49.3
Biting time of vector*		
During dusk/dawn*		
During day only	140	93.3
Both morning and day	9	6
Diagnosis of Kala-azar*		
Blood test*	1	0.7
Urine test	144	96
Treatment of Kala-azar is possible*		
Yes	6	4
No	100	100
Preferred place for		
	94	62.7

Awareness and Preventive Practice on Kala-Azar among the Community People of Morang, Nepal

treatment		
Hospital	53	35.3
Health post	3	2.0

Correct answer,* Multiple response **

Table no 4 revealed that three-fourths of the respondents (75.3%) mentioned garbage collection sites, and nearly half of the respondents (49.3%) revealed cracks and crevices in homes. Likewise, for the biting time of vector majority of the respondent (93.3%) correctly answered as during dusk/dawn.

The majority (96%) of the respondents answered blood tests as the diagnostic measure of kala-azar and cent per cent of the respondent revealed that treatment of kala-azar is possible. Although more than three-fifth (62.7%) seek treatment from the hospital but still 2% preferred traditional healers

Table 5. Respondents Awareness of chance of Re-infection and Preventive measures of Kala-azar n=150

Variables	Frequency(n)	Percentage (%)
Chance of re-infection in Kala-azar		
Yes*	109	72.7
No	41	27.3
Preventive measures of Kala-azar **		
Use of bed nets		
Maintain cleanliness	149	99.3
Spraying insecticides	134	89.3
Prevent stagnant water	70	46.7
Complication of Kala-azar	73	48.7
Pneumonia		
Anemia	108	72
Septicemia	112	74.7
Uncontrolled bleeding	40	26.7
	74	49.3

Correct answer,* Multiple response**

Table no 5 revealed that nearly three-fourths (72.7%) had knowledge about the chance of re occurring infection in Kala-azar whereas for the preventive measures of kala-azar nearly

cent percent (99.3%) answered as use of bed nets and (46.7%) answered as spraying insecticides and (74.7%) of the respondents answered anemia as the complication of Kala-azar and least (26.7%) answered as septicemia

Table 6. Respondents Level of Awareness on Kala-azar n=150

Level of awareness	Frequency(n)	Percentage (%)	Mean	Standard deviation (SD)
Inadequate	22	14.7		
Moderate	95	63.3	16.633	2.23
Adequate	33	22		

Table 6 shows that more than three-fifths (63.3%) had moderate awareness whereas (22%) had adequate awareness

about Kala-azar and 14.7% had inadequate awareness of kala-azar.

Table 7. Respondent's Level of Preventive practice on Kala-azar n=150

Preventive practices	Frequency(n)	Percentage (%)	Mean	Standard deviation (SD)
Inadequate	38	25.3		
Moderate	83	55.3	5.54	1.334
Adequate	29	19.3		

Mean score 5.54

Awareness and Preventive Practice on Kala-Azar among the Community People of Morang, Nepal

Table 7 shows that more than half (55.3%) of the respondents had moderate preventive practice on Kala-azar and 25.3%

had Inadequate preventive practice whereas 19.3% had adequate preventive practice.

TABLE. 8 Association between Level of Awareness and Selected Socio-Demographic Variables

Variables	Level of knowledge			Chi-Square	P-value	Phi
	Adequate n (%)	Moderate n (%)	Inadequate n (%)			
Age						
20-39	20 (61)	50(52.6)	17(77.27)	0.481	0.923	
40-59	13(39)	45(47.36)	5(22.72)			
Gender						
Female	23(69.69)	69(72.63)	18(81.81)	0.797	0.372	
Male	10(30.30)	26(27.36)	4(18.18)			
Ethnicity						
Dalit	12(36.36)	43(45.26)	14(63.63)	3.254	0.147	
Janajati	11(33.33)	24(25.26)	6(27.27)			
Madhesi	9(27.27)	25(26.31)	2(9.09)			
Brahmin/Chhetri	1(3.03)	3(3.15)	0(0)			
Education Status						
Basic level				6.157	0.203	
Secondary level	26(86.66)	58(84.05)	10(62.5)			
University	4(13.33)	10(14.49)	6(37.5)			
	0	1(1.44)	0			

Table 8 shows that there was no significant association between level of awareness and selected socio-demographic variables.

DISCUSSION

The findings of the present study show that more than three-fifths (64%) of the respondents revealed Kala-azar as vector borne disease which was similar to the study conducted in Bihar (66.7%) were aware of vector- borne disease.¹³ In the present study majority (84.7%) of the respondents revealed Kala-azar as a communicable disease which was in contrast to the study conducted in Northwest Ethiopia where (60.1%) knew Kala-azar as a communicable disease.¹⁴

In this research knowledge of the respondents in relation to the causative agent of Kala-azar were only 4%, which was in contrast to the study conducted in Dangihat Morang where nearly one-fifth (18.7%) knew about the causative agent of Kala-azar.¹³ Regarding signs/symptoms majority (96%) said fever was the sign/symptoms of kala-azar which was similar to the study conducted in Dharan where (88%) stated fever as

the major sign/symptom of Kala-azar.¹⁶ In the current study, a majority (75.3%) of the respondents were aware of garbage collection sites as the breeding place of vectors which was similar to the study conducted in Bihar where (70.3%) were aware of the breeding place.¹⁴ Regarding the level of Knowledge of Kala-azar, the current study shows that nearly two-thirds (63.3%) of respondents had moderate knowledge, (22%) had adequate knowledge whereas (14.7%) had inadequate knowledge of Kala-azar. The findings are supported by the study conducted in Bangladesh, where nearly three-fourths of the participants (72%) had average knowledge, (20%) had good knowledge whereas few (8%) had poor knowledge of Kala-azar.¹⁵ Concerning about biting time of vector, In the current study majority of the respondent (93.3%) answered dusk and dawn which was in contrast to the study conducted in Dangihat Morang where (67%) answered dusk and dawn.¹³ Likewise, in the current study (72.7%) of the respondents revealed that there is chance of re-infection in Kala-azar. Nearly cent percent (99.3%) revealed that use of bed nets as the preventive measure of Kala-azar

Awareness and Preventive Practice on Kala-Azar among the Community People of Morang, Nepal

whereas the study conducted in Dangihat morning revealed that three-fourths (64.8%) of the respondents use bed nets as the preventive measure.¹³

In the current study (82.7%) of the respondents had the presence of an animal shed and few (5.3%) had an animal shed far from home which was in contrast to the study conducted in Dharan where (85%) of the respondents had animal shed far from home.¹⁶ In the current study (63.3%) had moderate awareness whereas (22%) had adequate awareness and (14.7%) had inadequate awareness of kala-azar which was similar to the study conducted in north west Ethiopia where 61.8%, 24.6%, and 13.6% of the workers having poor, moderate, and good levels of knowledge scores, respectively.¹⁴ Similarly, a contrast to the study conducted in two highly-endemic areas of Bangladesh where 11% and 20% had good, 77% and 72% had average knowledge, 12% and 8% had poor knowledge of Kala-azar respectively.¹⁵ The present study shows that more than half (55.3%) of the respondents had moderate preventive practice, one-fourth (25.3%) had inadequate preventive practice and few (19.3%) had adequate preventive practice on kala-azar which was similar to the study conducted in Dangihat, Morang where the majority (78%) of the respondents had moderate preventive practice, one-fifth (20.9%) had inadequate preventive practice and very few (1.1%) had adequate preventive practice.¹³

CONCLUSION

The study was conducted to assess the level of awareness and preventive practice on kala-azar. This concluded moderate awareness of kala-azar. Therefore, suggested that there is still a need to improve the awareness of the respondents, particularly on its causative agent, preventive measures and complication. There was no statistically significant association between level of awareness and selected socio-demographic variables. However, to improve their awareness to an adequate level, awareness-raising programs focusing on preventive practice should be conducted.

Limitations of the study

The study was conducted only in 3 wards of Kathari gaupalika among 7 wards which carry a small size population.

Recommendation

Training, advertisement and awareness program should be conducted for community people for disease prevention and control. Similar study can be carried out in other endemic areas too in a large scale.

Conflict of Interest: The authors do not have any conflict of interest arising from the study.

ACKNOWLEDGEMENTS

We would like to express our sincere gratitude to Kathari Gaupalika, ward no 1, 5 and 6, Morang. We express our heartfelt thanks to all the participants who actively

participated in the study for extending their cooperation without whom this study would not have been possible.

REFERENCES

- I. William, C. & Shiel, J.R. Definition of Kala-azar-MedicineNet. (2018).
- II. Retrieved from <https://www.medicinenet.com>
- III. World Health Organization. Control of the leishmaniasis: report of a meeting of the WHO Expert Committee on the Control of Leishmaniasis, Geneva, 22-26 March 2010. World Health Organization; 2010.
- IV. Bi K, Chen Y, Zhao S, Kuang Y, John Wu CH. Current visceral leishmaniasis research: a research review to inspire future study. *BioMed research international*. 2018 Jul 10;2018.
- V. Pradella GD, Escobar TA, Duarte CA, Lübeck I, Góss GC, Lagreca LF, Heckler GF, Camargo LP, Romero BG. Identification of *Leishmania* spp. in horses and a dog from rural areas of Uruguaiana, Rio Grande do Sul, Brazil. *Semina: Ciências Agrárias*. 2020 Nov 1;41(6):2687-94.
- VI. Ruiz-Postigo, J.A., Jain, S., Mikhailov, A., Maia-Elkhoury, A.N., Valadas, S., Warusavithana, S., Osman, M., Lin, Z., Beshah, A., Yajima, A. and Gasimov, E., 2021. Global leishmaniasis surveillance: 2019-2020, a baseline for the 2030 roadmap/Surveillance mondiale de la leishmaniose: 2019-2020, une periode de reference pour la feuille de route a l'horizon 2030. *Weekly Epidemiological Record*, 96(35), pp.401-420.
- VII. Pandey K, Bastola A, Haiyan G, Pyakurel UR, Pandey BD, Dumre SP. Emergence of cutaneous leishmaniasis in Nepal. *Tropical medicine and health*. 2021 Dec;49(1):1-9.
- VIII. Moussa S, Alshammari TH, Alhudaibes KM, Alshammari TS, Alshammari TR, Elgendy AI. Awareness and behavioral practice of cutaneous leishmaniasis among hail population, Kingdom of Saudi Arabia. *J Microbiol Exp*. 2019;7(2):88-9.
- IX. Guha U, Chatterjee M, Sardar AA, Jana K, Saha P, Maji AK, Guha SK. Assessment of Knowledge, Attitudes, and Practices about Visceral Leishmaniasis in Endemic Areas of Malda District, West Bengal, India. *The American Journal of Tropical Medicine and Hygiene*. 2021 Feb;104(2):646.
- X. Shrestha M, Khatri-Chhetri M, Poudel RC, Maharjan J, Dumre SP, Manandhar KD, Pandey BD, Pun SB, Pandey K. Molecular evidence supports the expansion of visceral leishmaniasis towards non-program districts of Nepal. *BMC infectious diseases*. 2019 Dec;19(1):1-8.
- XI. Sudhin BN, Adhikari S, Khatiwada S. Epidemiology and outcome of acute burn patients at a new

Awareness and Preventive Practice on Kala-Azar among the Community People of Morang, Nepal

- dedicated burn centre in Nepal. *Journal of Society of Surgeons of Nepal*. 2020 Dec 18;23(1):19-29.
- XII. Feinberg AP. The key role of epigenetics in human disease prevention and mitigation. *New England Journal of Medicine*. 2018 Apr 5;378(14):1323-34.
- XIII. Bista S, Sapkota S, Akela G. Knowledge and practice regarding Kala-azar among community people of Dangihat, Morang. *Journal of Chitwan Medical College*. 2017 Jun 30;7(2):43-9.
- XIV. Govil D, Sahoo H, Pedgaonkar SP, Das KC, Lhungdim H. Assessing knowledge, attitudes, and preventive practices related to kala-azar: a study of rural Madhepura, Bihar, India. *The American Journal of Tropical Medicine and Hygiene*. 2018 Mar;98(3):857.
- XV. Alemayehu M, Paintain L, Adera C, Berhe R, Gebeyehu A, Gizaw Z, Herrero M, Mulugeta Beshah A, Den Boer M, Nigusie A, Alem M. Impact of Education on Knowledge and Practice of Kala Azar Preventive Measures among Seasonal and Migrant Agricultural Workers in Northwest Ethiopia. *Am J Trop Med Hyg*. 2020 Feb 10;102(4):758-67.
- XVI. Saleh F, Khan MF, Kabir MR. Awareness of residents about kala-azar and its related practices in two endemic areas of Bangladesh. *Plos one*. 2019 Jul 18;14(7):e0219591.
- XVII. Dawadi B, Bandhu A. Awareness on kala-azar among the people living in selected wards of Dharan municipality. *Nursing Journal BPKIHS*. 2015;1(1).