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### Awareness on Risk Factors and Warning Signs and Belief about Cancer among General Public in a Community of Biratnagar, Morang

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#### Abstract

Globally, cancer is the leading cause of death and increasing in trend in Nepal. Lack of awareness on cancer, particularly of its risk factors, possible signs and screening guidelines is the barrier for early detection of cancer. Myths and misconceptions related to cancer screening need to be tackled through public health education programs. Hence, this study aims to assess the awareness about cancer risk factors, warning signs, and beliefs about cancer in the general public. Descriptive cross-sectional study design was adopted, and a total of 188 households in a community at Biratnagar-8, Morang were included by using the systematic random sampling. Sampling frame was designed using interval of 17 (K<sup>h</sup> interval) to meet the sample size. Face to face interview was conducted to collect data within a 4-week period. Data was analyzed in IBM SPSS version 16, and descriptive statistics such as frequency, percentage, mean were calculated and are presented in tables. Out of the 188 study participants, more than half belonged to 20-35 years age group, with a mean age 45.9 years, and two-thirds (69.7%) were female. The majority (80.9%) of study participants had inadequate awareness on risk factors and warning signs of cancer. However, half of them believed that cancer can be diagnosed at early stages (49.5%) and preventable (46.8%). The study concluded that study participants had inadequate awareness on risk factors and warning signs of cancer. Therefore, there is an urgent need to focus for the development and implementation of public campaigns to increase awareness on cancer.

**Keywords:** Awareness, belief, cancer, risk factors, diagnosis

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## Introduction

Cancer is the second leading cause of death globally, causing nearly 10 million deaths in 2020 (*Cancer*, 2020). Approximately 70% of deaths from cancer occur in low- and middle-income countries (*Cancer*, 2020). In Nepal, cancer accounts for 8% mortality and is an emerging public health concern. The leading cancer sites including both sexes are lungs, breast, colon, rectum, stomach, lip and oral cavity, cervix, uterus, gallbladder, thyroid and pharynx (Chapagain et al., 2019). Between 30-50% of all cancer cases are preventable (*Cancer*, 2015). However, lack of awareness on cancer, poor health policy, limited health insurance coverage for the prevention, early detection and treatment of cancer are the major challenges for the cancer prevention and control in Nepal (Piya & Acharya, 2012). Low cancer literacy is likely to contribute to a delay in seeking medical help and consequently, leading to poor treatment outcome (Niksic et al., 2016). Therefore, cancer awareness among the general public is another important area of intervention to promote early detection (Gyawali et al., 2020). Documentation of awareness level and knowledge gap is necessary for planning of possible health promotional interventions that will improve early detection and better outcome of treatment (Koo et al., 2020). Hence, this study is aimed to find out the awareness on risk factors and warning signs of cancer in general population in a community.

## Methods

A descriptive cross-sectional study design was adopted. Out of total 3263 households of Baluwahi community at ward 8 of Biratnagar, 188 households were included by using the systematic random sampling. Sampling frame was designed using interval of 17 (K<sup>th</sup> interval) to meet the sample size. Sample size estimation was based on the proportion of satisfactory knowledge (60%) on cancer warning signs being 65.1 percent (Ravichandran et al., 2014) at 95 percent level of significance with allowable error of 7 percent and 5 percent non-response rate. Adults, both male and female, of age group more than 20 were included as a unit of the study. Door-to-door survey was done. If more than one individual meeting the inclusion criteria was available in a household during the data collection, the youngest member of the household was included as a sample for the study. A semi-structured interview schedule was developed by using questions from validated and reliable instruments, including the Awareness and Beliefs about Cancer (ABC) instrument (Simon et al., 2012) and Cancer Research UK's Cancer Awareness Measure (CAM) (Stubbings et al., 2009) in two parts. Part one contains socio-demographic information, and part two contains questions related to awareness of cancer risk factors (17 items), warning signs of cancer (9 items), and beliefs about cancer treatment, outcome and screening (5 items). Forward and backward translation of the questionnaire to Nepali language and then to English language were performed to

maintain the linguistic validity and reliability of the tool. The questionnaire was pretested in 10% (19) adult population and necessary modification was done. To measure the overall awareness of risk factors and warning signs for cancer, each correct answer was scored one point, with the total possible scores ranging from 0 to 26 points. Total score was converted to percentage, and score of more than 50% was considered as adequate awareness, and less than 50% considered as inadequate awareness (Ravichandran et al., 2014). To assess the beliefs about treatment and outcomes, participants were asked five questions. Data was collected from September-October, 2019.

All the respondents were explained the objective of the study; written consent was taken for voluntary participation in the study, and data was analyzed by using IBM Statistical Package for the Social Sciences (SPSS) version 16. Descriptive statistics- frequency, percentage, mean, standard deviation, and range were used to describe data.

**Results**

Out of the total study participants, 60% belonged to the age group of less than 35 years, with mean age 34.9 years and almost all were Hindu by religion. More than a third (69.7%) of participants were female, and majority of them were married. The details of socio-demographic characteristics of the study populations are illustrated in Table 1.

**Table 1**

*Demographic Information of Participants (n=188)*

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age in Years</b>		
20-35	113	60.2
36-59	58	30.8
60-80	17	9.0
Mean age: 34.9 years, SD- 13.6years,		
<b>Gender</b>		
Female	131	69.7
Male	57	30.3
<b>Marital Status</b>		
Married	152	80.9
Unmarried	28	14.9
Separated and widow	8	4.2
<b>Religion</b>		
Hindu	181	96.3

Other than Hindu	7	3.7
<b>Educational Status</b>		
Cannot read and write	52	27.7
Primary	50	26.6
Secondary	56	29.8
Higher Secondary and above	30	16.0

Table 2 depicts the response on common cancer in Nepal. Almost all of the participants had heard of cancer; and breast cancer (18.6%), stomach cancer (10.6%) and liver cancer (6.9%) were the top most common cancer as responded by both male and female participants both sexes. Similarly, lung cancer (17.6%), oral cancer (10.1%) and throat/ neck cancer (5.3%) were most common in male and cervix/ uterus cancer (29.8%), lung cancer (10.1%) and breast cancer (2.7%) were common in females.

**Table 2**

*Participants response on Most Common Cancer in Nepal (n =188)*

Both Sex		Male		Female	
Cancer *	N (%)	Cancer*	N (%)	Cancer*	N (%)
Breast	35(18.6)	Lung	33( 17.6)	Cervix/ Uterus	56(29.8)
Stomach	20(10.6)	Oral	19(10.1)	Lung	19(10.1)
Liver	13(6.9)	Throat/ Neck	10(5.3)	Breast	5(2.7)
Don't know	72(38.3)	Don't know	100(53.2)	Don't know	104(55.3)

**\*Multiple Responses**

Regarding awareness on risk factors, majority of study participants' agreed that chewing tobacco (90.4%), smoking (87.8%) and passive or second hand smoking (60.6%) are the well-established risk factor that increases the risk of cancer. Further, 47.3%%, 44.1%, 37.2% and 33.0% knows environmental pollution, chemical exposure, being overweight and radiation exposure, respectively, will increase the risk of cancer. However, 70.2% did not know that infection by Human Papilloma Virus (HPV) and Hepatitis can increase the risk of cancer.

**Table 3**

*Participants' Awareness on Risk factors of Cancer (n=188)*

<b>Risk Factors*</b>	<b>Yes N (%)</b>	<b>No N (%)</b>	<b>Don't Know N (%)</b>
Use of chewing tobacco ( tamakhu/ surti/ guthkha)	170(90.4)	4(2.1)	14(7.4)
Smoking cigarette	165(87.8)	7(3.7)	16(8.5)
Exposure to passive cigarette smoking	114(60.6)	36(19.9)	38(20.2)
Exposure to environment pollutions	89(47.3)	28(14.9)	71(39.8)
Exposure to chemicals	83(44.1)	13(6.9)	92(48.9)
Consumption of food containing preservatives	70(37.2)	34(18.1)	84(44.7)
Being obese	70((37.2)	58(30.9)	60(31.9)
Having a closed relatives (Ist degree relatives) with cancer	70(37.2)	50(26.6)	68(36.2)
Being Over 70 years of age	64(34.0)	57(30.3)	67(35.7)
Eating red meat processed meat once a day or more	63(33.5)	52(27.7)	73(38.8)
Exposure to radiation	62(33.0)	28(14.9)	98(52.1)
Low Consumption of fruit and fresh vegetables (<5 portion per day)	50(26.6)	52(27.7)	86(45.7)
Less physical exercise (less than 30 min per day)	48(25.5)	54(28.7)	86(45.7)
Hormonal treatment for longer durations	45(23.9)	16(8.5)	92(48.9)
Exposure to ultraviolet ray/ sun	39(20.7)	46(24.5)	103(54.8)
Infection with HPV	38(20.8)	18(9.6)	132(70.2)
Infection with Hepatitis B and C Virus	38(20.2)	18(9.6)	132(70.2)

***\*Multiple Responses***

From the table below, it can be interpreted that very few people have awareness on different warning signs of cancer, as only 20% of the sample was aware that change in bowel and bladder habit is the warning sign of cancer. Similarly, only one-third are aware about most of the warning signs. However, unexplained lump or swelling in body is the warning sign which is most commonly known to about half (55.3%) of the participants.

**Table 4**

*Participants' Awareness on Warning Signs of Cancer (n=188)*

<b>Warning Signs*</b>	<b>Yes N (%)</b>	<b>No N (%)</b>	<b>Don't Know N (%)</b>
Unexplained lump or swelling in body	104(55.3)	26(13.8)	58(30.9)
A Sore that does not heal	72(38.3)	30(16.0)	86(45.7)
Persistent unexplained pain in body	70(37.2)	19(10.1)	99(52.7)
Persistent unexplained weight loss (without effort to lose weight)	69(36.7)	26(13.8)	93(49.5)
Nagging cough or hoarseness	68(36.2)	35(18.6)	85(45.2)
Change in the appearance of a mole or wart	61(32.4)	30(26.0)	97(51.6)
Persistent difficulty in swallowing and indigestion	54(28.7)	37(19.7)	97(51.6)
Unexplained bleeding or discharge	54(28.7)	38(20.2)	96(51.1)
Change in bowel and bladder habit	38(20.2)	30(16.0)	120(63.8)

***\*Multiple Responses***

Study findings showed that nearly half (52.1%) of the participants believed that cancer can be diagnosed at early stages, is a fatal (49.5%) and preventable (46.8%) disease, whereas about one-third (30.3%) of them believed that cancer is a communicable disease. Similarly, about two-third (63.8%) had a belief that cancer is curable if detected in early stages.

**Table 5**

*Participants' Belief about Cancer (n=188)*

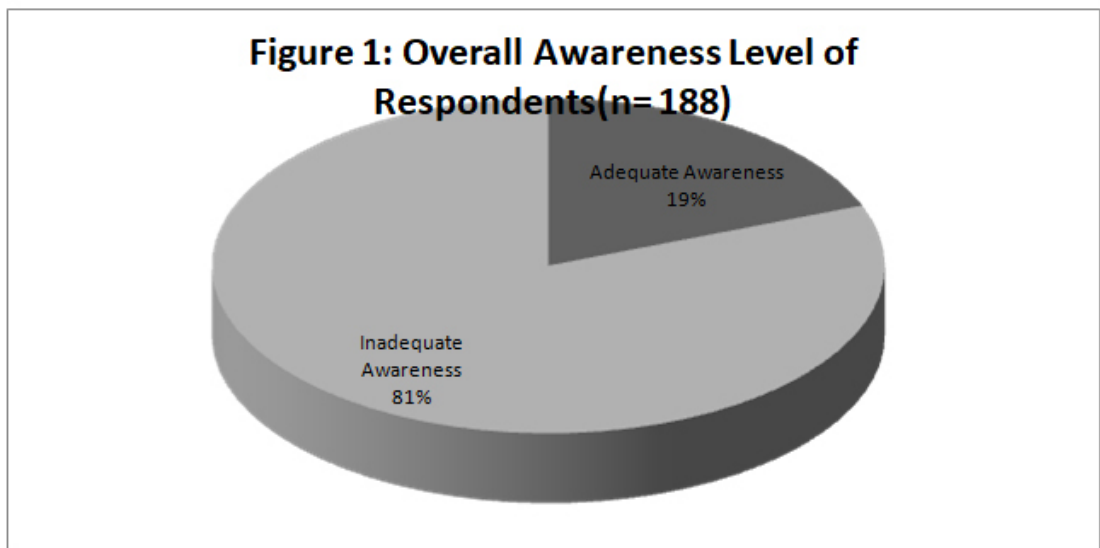
<b>Variables</b>	<b>Yes</b>	<b>No</b>
Cancer is communicable disease	57(30.3%)	131(69.7%)
Cancer can be diagnosed early stages	98(52.1%)	90(47.9%)
Cancer is curable if detected at early stage	120(63.8%)	68(47.2%)
Cancer is preventable disease	88(46.8%)	100(53.2%)
Cancer is fatal disease	93(49.5%)	95(50.5%)

Regarding level of awareness on risk factors and warning signs of cancer (Table 6, figure1), out of the 26 total score, maximum score was 20 and scored by only 0.5%. The overall mean score was 9.93 (SD 4.40). Similarly, very few (19%) had adequate levels of knowledge.

**Table 6**

*Awareness Level on Risk Factors and Warning Signs of Cancer (n=188)*

Variable	N (%)	Range	Mean ± SD
Awareness level on Risk factors		0-14	6.80 ± 3.12
Adequate Awareness (>50%)	56(29.8%)		
Inadequate Awareness (<50%	132(70.2%)		
Awareness on Warning Signs		0-9	3.13±1.86
Adequate Awareness (>50%)	40(21.3%)		
Inadequate Awareness (<50%	148(78.7%)		
Overall Awareness Level		0-20	9.93±4.40
Adequate Awareness (>50%)	36(19.1%)		
Inadequate Awareness(<50%	152(80.9%)		



**Discussion**

About 30-50% of all cancer cases are preventable, and prevention is the most cost effective and long term strategy (*Preventing Cancer*, n.d.). Cancer related mortality, morbidity and burden can be reduce if people elude avoidable risk factors and stop cancer related-infections (Plummer et al., 2016). Most low and middle income countries’ cancer

patients, including Nepal, are presented at advanced stages of the disease, where it is difficult to treat and have poor outcome of treatments. Detection of disease in advanced stage is partly attributed to lack of awareness on cancer including risk factors, warning signs, myths and misconceptions about screening and treatment of cancer (Piya & Acharya, 2012). The myths and misconceptions can only be ended through increasing awareness in the society. Thus, the present study is aimed to assess the awareness on cancer risk factors warning sign and belief in a community. Among 188 study participants, all have heard about cancer. Regarding the most prevalent cancers in Nepal, they mentioned breast cancer, stomach cancer and lung cancer in both sexes. This finding contradict the national data about cancer; according to GLOBOCAN 2020 report, lung cancer, cervical cancer and breast cancer are the top three cancer in both sexes (WHO,2020). Overall, the study population demonstrated a lack of knowledge regarding prevalent cancers in country.

The present study revealed 80.1%% had inadequate awareness on risk factors and warning signs of cancer. These findings are similar with a study conducted in Ethiopia (Labisso et al., 2020), Malaysia (Schliemann et al., 2020) and UAE(Ahmed et al., 2020).

In our study, the risk factors which the greatest number of participants were aware of included chewing tobacco (90.4%) smoking (88%) second-hand smoking (60%) and environmental pollutions (47.3%). In a study conducted in Canada demonstrated the similar findings in which the majority of participants mentioned that smoking (97.44%) and second-hand smoking (96.55% ) could be risk factor for cancer (Shi et al., 2020).

The impact of chewing tobacco, smoking, second hand smoking was correctly identified by the majority of the participants, whereas poor awareness was observed in other risk factors such as infection with HPV and Hepatitis, and UV radiation. This could be a result of the regulation and law of government of Nepal regarding warning message and pictures on tobacco product boxes, packets and other forms of advertisements (*Nepal Details | Tobacco Control Laws*, 2021)

## **Conclusion and Implications**

The study concluded that study participants had inadequate awareness on risk factors and warning signs of cancer. The findings can help to develop intensive cancer-relevant information campaigns for the general public. These campaigns should raise cancer awareness particularly regarding risk factors, warning and screening guidelines. Comparative studies can assess the awareness on cancer urban and rural communities. Similarly, the prevalence of carcinogenic exposure within community needs to be investigated further.



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