

## **Assessment of knowledge, attitude and practice of dengue in factory workers of Amritsar, Punjab**

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**Received:** 02 January 2016

**Revised:** 08 January 2016

**Accepted:** 18 January 2016

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### **ABSTRACT**

**Background:** Dengue, a mosquito borne, arboviral disease has become a major cause of health concern in the recent times throughout the world. In India, we have been witnessing annual outbreaks for the past few years and lack of knowledge about prevention and treatment of dengue among majority of the population leads to increased mortality. Apart from Delhi, many cases of dengue have been reported from Punjab. In spite of this fact, very few studies have been done to know about the knowledge of people regarding dengue fever and whether proper preventive measures are being practiced by the community to limit its spread. The objective of the study is to assess the knowledge, attitude & practices (KAP) regarding dengue in factory workers in Amritsar, Punjab.

**Methods:** The present study was conducted among 162 factory workers of old focal point area of Amritsar in the month of November, 2015. Pre validated, self-structured questionnaires were distributed among the workers after explaining them about the purpose of the study. The questionnaire was also typed in the vernacular language (Punjabi) for the ease of the participants. A written informed consent was obtained from them. The data collected was compiled and analyzed in a pre-structured format.

**Results:** Among 162 workers enrolled for the study, 98.6% were literate and majority (99.4%) had heard about dengue fever. Almost everyone (98.8%) was aware that it is caused by the bite of a mosquito. The major sources of information were television (54.9%) and newspaper (30.9%). High fever was the most common sign and symptom (49.4%) mentioned by the workers. Only 30.9% respondents knew that aspirin should be avoided in a dengue patient. Many workers (94.4%) were aware that standing water can be a common breeding place for the mosquitoes but still, regular cleaning of coolers or water containers was not practiced by all.

**Conclusions:** The present study shows that literacy status of an individual is not associated with adequate knowledge and its application. The study population had insufficient information about dengue while the preventive measures which were known to them for limiting the spread of dengue was not satisfactorily practiced. We as health care professionals should undertake more of these studies to know about the knowledge status of the community and hold health awareness camps. The government should also adopt frequent measures to spread such information through television, newspapers, posters and campaigns.

**Keywords:** Knowledge, Attitude, Practice, Dengue, Factory workers

### **INTRODUCTION**

Dengue fever is a mosquito borne viral disease which is rapidly spreading around the world and becoming a major global health concern.<sup>1</sup> In India, annual outbreaks are reported every year with peak incidence in the months of

September to November.<sup>2</sup> In the year 2014, more than ten thousand cases of dengue were reported from India and the incidence was almost double in the year 2015.<sup>3</sup> In the absence of any definitive therapy or vaccine to control dengue, vector control programmes to control *Aedes aegypti* and *Aedes albopictus* and limit their spread to

newer areas is the best possible way to combat this issue.<sup>4</sup> Therefore active community participation by organizing frequent health education programmes which aims at improving the knowledge about dengue, attitude towards the disease and preventive practice to limit its spread is the need of the hour. It is also important to have a sound knowledge about the correct treatment practice undertaken for dengue to prevent its complications. In the present study, we tried to determine the knowledge, attitude and practice regarding dengue among factory workers in Amritsar via a pre validated questionnaire, as there is paucity of such studies in this area.

## METHODS

The present study was conducted among 162 factory workers in old focal point area of Amritsar by distributing a pre validated, self-structured questionnaire. The questionnaire was also typed in the vernacular language (Punjabi) for the ease of the participants. The workers were first explained about the purpose of the study and a written informed consent was then obtained from them. The data collected was compiled and analyzed in a pre-structured format.

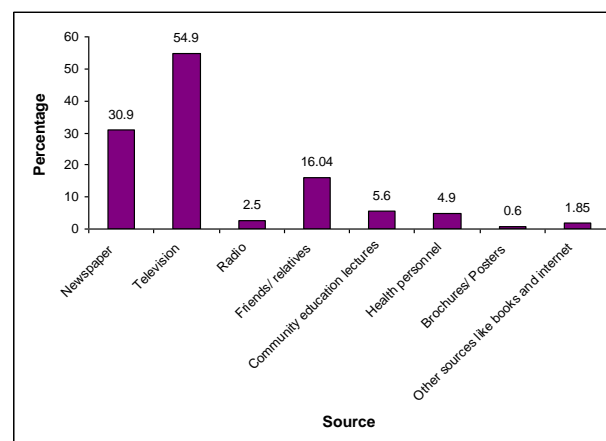
## RESULTS

A total of 200 factory workers were approached for the study and 162 among them gave their consent for participation in the study. The workers were all male. The data from these 162 respondents was successfully obtained and analyzed. Among the factory workers, 46.3% were in the age group of 18-25 years, 32.7 % were between 26-35 years of age, 15.4% were in the age group of 36-45 years and 5.5% were within 46-65 years of age. Majority of the respondents (98.6%) were literates.

### Knowledge about dengue fever

Majority of the workers (99.4%) had heard about dengue fever and mostly (98.8%) were aware that it is caused by the bite of a mosquito. The major sources of information were television (54.9%), newspaper (30.9%), friends/relatives (16%) etc. (Figure 1). About 4.9% felt that dengue can be caused by the consumption of dirty food and drinking water. The results are summarized in Table 1. The knowledge about the day biting behaviour of the mosquito was seen in 45.7% workers while 38.9% felt that the mosquito can bite both during day or night time while 14.2% answered that it bites during night time. About 64.2% workers responded that dengue peaks in the rainy season (July-August), 18.4% said that the peak months for dengue are autumn months (September-November) while 11.1% felt that dengue is most prevalent in summers (April-June) and 2.5% workers even thought of winters (December-February) as peak months for dengue fever. About 43.8% workers knew that dengue could be transmitted by blood transfusion. Others mentioned that needle stick injury, sharing of food & clothes with the patient can spread dengue. It was good

to know that many workers (94.4%) were aware that standing water can be a common breeding place for the mosquitoes while few also said the garbage collection and burrows/pits can also harbour mosquitoes. When asked about the signs and symptoms of dengue, high fever was the most common response (49.4%). Around 38.3% had the knowledge that a patient of dengue could present with any of the signs and symptoms like fever, body-aches, nausea & vomiting, red spots on the body, diarrhoea or pain abdomen. Very few (1.2%) were not aware of any of the presentations of dengue fever. We wanted to know that are the rural people aware that the testing for dengue is available in most of the city laboratories and 63.6% workers had the information. When asked about the knowledge about treatment and complications of dengue, only 30.9% respondents knew that aspirin should never be given to a patient of dengue, 41.3% did not know what medicines should be avoided in a patient of dengue while 11.1% also replied that paracetamol cannot be given to a patient of dengue. It was seen that 96.9% of workers had the knowledge that dengue is treatable. They answered that as soon as dengue is suspected, immediate medical help should be sought; many workers (91.3%) knew that consumption of kiwi fruit is beneficial in a patient of dengue while few (7.4%) thought of papaya as a beneficial therapy. Others mentioned that keeping the surroundings clean, wearing full sleeved clothes, consumption of goat's milk, eating paracetamol with plenty of liquid diet, avoiding antibiotics are also the treatment measures for dengue. Low platelet count as a complication of dengue was the most common response (54.9%), followed by dengue haemorrhagic fever (14.2%).



**Figure 1: Sources of information about dengue fever.**

### Attitude towards dengue fever

On assessment of the attitude of the workers regarding dengue, it was seen that 35.2% thought that they might be at risk of getting dengue while 27.8% absolutely agreed about being at risk of suffering from dengue. Some (27.2%) said that they take all the necessary precautions against dengue and 9.8% did not know if they are at risk.

Majority of the respondents (91.4%) have never tried to treat any family member or friend suffering from dengue on their own. Few (2.5%) said that they tried to give

home remedies like juice of papaya rind, plenty of fluids, goat's milk to a dengue patient.

**Table 1: Knowledge about dengue fever.**

Questions	Number	Percentage (%)
<b>Have you ever heard about dengue?</b>		
No	Nil	Nil
Yes	161	99.4
May be	1	0.6
<b>What is the cause of dengue?</b>		
Bite of mosquito	160	98.8
Bite of housefly	Nil	Nil
Consumption of dirty food/ drinking water	8	4.9
Don't know	Nil	Nil
<b>At what time does the dengue causing mosquito most likely bite?</b>		
Night time	23	14.2
Day time	74	45.7
Both night and day time	63	38.9
Don't know	1	0.6
No response	1	0.6
<b>During which part of the year is dengue most prevalent?</b>		
Summers (April-June)	18	11.1
Rainy season (July-August)	104	64.2
Autumn (September- November)	30	18.5
Winters (December- February)	4	2.5
No response	6	3.7
<b>Dengue can be transmitted by :</b>		
Human to human contact	6	3.7
Blood transfusion	71	43.8
Needle stick injury	21	12.96
Sharing of food/ clothes with the patient	10	6.2
None of the above	36	22.2
Don't know	14	8.6
No response	4	2.5
<b>What is the common breeding place for mosquitoes?</b>		
Burrows and pits	5	3.1
Standing water (coolers, utensils, bucket, flower pots etc)	153	94.4
Plants	1	0.6
Garbage	11	6.8
Don't know	Nil	Nil
<b>What are the signs and symptoms of dengue?</b>		
High fever	80	49.4
Severe body aches	4	2.5
Nausea and vomiting	7	4.3
Red spots on the body	16	9.8
Diarrhoea	2	1.2
Pain abdomen	1	0.6
All of the above	62	38.3
Don't know	2	1.2
<b>Is the facility of testing for dengue available at each and every laboratory?</b>		
Yes	103	63.6
No	44	27.2
Don't know	15	9.2
<b>Are you aware of any ayurvedic/ herbal remedy for dengue?</b>		
Yes	24	14.8
No	125	77.2
No response	13	8.0

<b>Do you know that which medication(s) should NEVER be given to a patient suffering from dengue?</b>		
Aspirin	50	30.9
Ibuprofen	13	8.03
Paracetamol	18	11.1
Nimesulide	11	6.8
Don't know	67	41.35
No response	3	1.85
<b>Consumption of which fruit is most beneficial in a patient of dengue?</b>		
Papaya	12	7.4
Mango	Nil	Nil
Kiwi	148	91.35
Apple	1	0.6
Banana	1	0.6
<b>What are the complications of dengue fever?</b>		
Dengue hemorrhagic fever	23	14.2
Shock	4	2.5
Low platelet count	89	54.9
Dehydration	9	5.6
Death	15	9.3
Don't know	18	11.1

Table 2: Attitude towards dengue.

Questions	Number	Percentage (%)
<b>Do you feel that you are at risk of getting dengue?</b>		
Absolutely	45	27.8
Maybe	57	35.2
No, I take all the precautions	44	27.2
Don't know	16	9.8
<b>Do you think dengue fever is treatable?</b>		
Yes	157	96.9
No	Nil	Nil
Don't know	3	1.8
No response	2	1.2
<b>Have you ever tried to treat a relative/ family member/ friend suffering from dengue yourself with home remedies?</b>		
No	148	91.4
Yes	4	2.5
No response	10	6.2
<b>Does a patient of dengue require hospitalization?</b>		
Definitely	74	45.7
Sometimes	79	48.8
No, he can be treated at home	4	2.5
No treatment required	Nil	Nil
Don't know	2	1.2
No response	3	1.8
<b>Is it possible to prevent dengue?</b>		
No	2	1.2
Yes	148	91.4
Maybe	5	3.1
Don't know	4	2.5
No response	3	1.8

Table 3: Practices towards prevention of dengue fever.

Questions	Number	Percentage (%)
<b>How can dengue be prevented?</b>		
Using mosquito sprays and repellants	70	43.2
Use of bed nets, window and door screens	20	12.3
Wearing full sleeve clothes	26	16.04
Prevent standing water in house or around the house (discarded tyres, plastic containers, ditches etc)	103	63.6
By tightly covering any water container	17	10.5
Regular cleaning of coolers	20	12.3
Preventing garbage collection	19	11.7
Cut any heavy vegetation around the house	18	11.1
Don't know	1	0.6
<b>Are you aware that government sprays insecticides to control mosquitoes?</b>		
Yes	120	74.1
No	42	25.9
<b>How often do you clean your water filled containers, coolers and ditches around the house &amp; workplace?</b>		
Every alternate day	42	25.9
Once a week	58	35.8
Once in two weeks	14	8.6
Once in a month	23	14.2
Once in six months	12	7.4
Never done it	9	5.6
No response	4	2.5
<b>Where all do you collect water in your house or workplace?</b>		
Open containers (jugs, buckets, vases etc.)	43	26.5
Closed bottles	70	43.2
Coolers	22	13.6
Flower pots	1	0.6
Water dispensers	32	19.8
Others (Buckets with lids, drums, earthen pots)	5	3.1
<b>Have you ever attended dengue prevention lectures/ camps?</b>		
Yes	4	2.5
No	155	95.7
No response	3	1.8
<b>Are you a part of any community related programmes for prevention of dengue?</b>		
Yes	6	3.7
No	155	95.7
No response	1	0.6

About 48.8% workers agreed that a patient of dengue may require hospitalization while 45.7% felt that a dengue definitely requires hospitalization. Majority of the respondents (91.4%) felt that dengue can be prevented. Table 2 shows that attitudes of workers regarding dengue.

### **Preventive measures against dengue**

As it has been seen from the above results about knowledge regarding dengue, majority of the respondents know that standing water (coolers, utensils, buckets, and flower pots) is a common breeding place for the *Aedes* mosquitoes. Therefore 63.6% replied that by preventing collection of the standing water in and around the house is an important way to prevent dengue spread. Another 43.2% replied that use of mosquito sprays and repellents

can be helpful too. Other methods of prevention of dengue like use of bed nets, window screens, wearing full sleeve clothes, regular cleaning of coolers, covering of water containers, avoiding garbage collection was mentioned by few workers (Table 3). About 74.1% respondents were aware that government spreads insecticides to control mosquitoes which can prevent dengue. When asked about the frequency with which these workers checked or cleaned their coolers, water containers in the house, 35.8% checked it once a week, 25.9% every alternate day, 14.2% once in a month and others once in two weeks (8.6%) or once in six months (7.4%). A few of them (5.6%) accepted that they had never bothered to clean these. About 43.2% said that they collected water in closed containers while 26.5% still collected water in open containers like jars, buckets etc. Majority of the workers had never attended any dengue

prevention lectures/camps or been a part of any community related dengue prevention programme (95.7%, 95.7% respectively). Just one respondent mentioned that he was an active participant in village community programmes for prevention of dengue.

## DISCUSSION

The present study documents that almost all the participants had heard about dengue and mostly were aware that it is caused by the bite of the mosquito. Similar results have been observed in other studies done in India.<sup>2,5,6</sup> Majority of the study population was literate and had access to newspapers and television which might be the reason for awareness about dengue fever. Therefore media plays an important role in spreading awareness about such diseases which reaches out to a large number of people across the land. For remote areas, camps/ community lectures should be organized more frequently as more awareness is still required regarding various aspects of dengue like biting habits of the mosquito, mode of transmission and signs and symptoms of the disease. This knowledge about mode of transmission is important as it can help in prevention of dengue while early recognition of signs & symptoms can lead to timely management & prevention of complications of dengue. It was good to see that workers were aware that testing facility for dengue was available in many city laboratories and therefore if they suspected any family member or friend of having dengue, immediate medical help could be sought. Regarding the breeding places of the vector, majority knew that stagnant water is the culprit but despite this knowledge, only 61.7% cleaned their coolers or water containers on alternate days or once a week. Rests of the workers still were less cautious in this aspect. This shows that being literate or being knowledgeable is not associated with being more cautious or practicing cleanliness just as was seen in other studies.<sup>2,6</sup>

The correct treatment measures for dengue after its diagnosis is important so that a patient does not land into its serious complications. The knowledge that for fever, only paracetamol should be consumed and aspirin or ibuprofen should never be taken is still lacking among the general population. The role of health care worker is important here who should be educating people about the correct management of dengue by camps or lectures. Electronic and print media again can play a vital role in dissipation of such information. Many participants knew kiwi is a beneficial fruit in dengue but few considered papaya to be useful especially the juice of papaya rind. Such beliefs/ rituals which usually have no medical basis need to be eradicated from the mind of people as they can worsen the condition of the patient. People need to be educated that they should carefully follow the instructions of the registered medical practitioner and not to self-medicate. Many still think that it is always necessary to hospitalize a dengue patient and hence sometimes due to financial constraints they refrain from

consulting a doctor. The need is to spread awareness that if timely management is done with the help of a doctor, patient can be managed at home and hospitalization can be avoided. Proper care of the patient, adequate bed rest and compliance of doctor's instructions can generally treat the patient of dengue.

Most of the respondents were aware of one or the other measures for prevention of dengue like prevention of stagnant water, use of mosquito repellents, wearing full sleeve clothes and regular cleaning of coolers. Also they were aware that government sprays insecticides to control mosquitoes. What is still required is more emphasis on regular practice of these preventive measures which is the only way to limit the spread of the disease, so government should frequently hold campaigns which focus on the importance of exercising of the environmental controls for mosquitoes.<sup>4</sup>

## CONCLUSION

Dengue is a preventable and a treatable disease. The present study showed that many of the participants knew about the disease but the knowledge regarding signs and symptoms was still not sufficient. They were aware that dengue can be treated but many still did not know which medicines should be absolutely avoided to prevent any further complications in a patient of dengue. Awareness about preventive measures is present among many but the practice of the same is not seen in all. There is scarcity of such studies done in Punjab according to our knowledge and more of these studies need to be carried out in other areas. This will highlight the magnitude of knowledge among other population groups and collection of such data can help in identifying the existing gap in the awareness of dengue, its spread, signs & symptoms, treatment and prevention. Community lectures, health campaigns can be organized to dissipate such information. More information can be disseminated through electronic and print media which can reach to a wider population.

## ACKNOWLEDGEMENTS

We thank the factory workers and their management for the support and participation.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Tikoo D, Sharma G, Gupta M. Assessment of knowledge, attitude and practice of dengue in factory workers of Amritsar, Punjab. *Int J Basic Clin Pharmacol* 2016;5:38-44.