

# Knowledge and Perception about Dengue Fever among Private Medical College Students of Lahore

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## ABSTRACT

**Background:** Dengue is one of the most common and fatal mosquitoes inflicted viral disease that human encounter, affecting approximately 100 million people worldwide. It has become a major public health concerns and prevails as an endemic in various regions of Pakistan with high mortality rate. These outbreaks and subsequent high mortality every year are due to low awareness level of the community especially in densely populated areas. Health professionals are widely listened and play a vital role in health education and mass awareness of life-saving messages.

**Aim:** To assess knowledge & perception of dengue fever among students of a private medical college at Lahore.

**Method:** A cross sectional study was conducted using semi-structured, pre-tested questionnaire for collection of knowledge and perceptions of medical student's data about dengue fever. The target convenient sample was 300 private medical college students (75 from each class) of first four years of MBBS (final year excluded). These questionnaires were responded voluntarily after availing respondent consents.

**Results:** Among the 300 respondents, 67% were female and 33% male students of basic sciences (1<sup>st</sup>, 2<sup>nd</sup> years) and pre-clinical sciences (3<sup>rd</sup> and 4<sup>th</sup> years) of MBBS. Among the respondents only 21% knew that the dengue vector is an *Aedes mosquito* while 35% correctly answered that *Aedes* breeds in clean water pots. Among the students 100% knew fever as the primary symptom, 49% bleeding and 39% muscular fatigue & joint pains. In a multiple answer mosquito net (100% positive answers) was declared as main preventive measure while covering water pots (55% positive answers) as second.

**Conclusion:** The knowledge level of pre-clinical medical students was much better than the basic sciences students. It is concluded that dengue awareness health education campaigns may be arranged for medical students in order to raise their level of knowledge and perception.

**Keywords:** Dengue, knowledge, prevention, medical students, Lahore

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## INTRODUCTION

Word 'dengue' is derived from Swahili phrase "Ka-dinga pepo", meaning "cramp-like seizure caused by an evil spirit" and some favor a Spanish origin that means fastidious or careful, a peculiar gait of a person suffering the bone pain of dengue fever. The first record of a case is traced in a Chinese medical encyclopedia from the Jin Dynasty (265–420 AD) while first recognized epidemics occurred simultaneously in Asia, Africa, and North America in the year 1780s. The first confirmed case report dates in 1789 by Benjamin Rush<sup>1</sup>. The agent of the disease is a dengue virus that belongs to Flaviviridae family. These viruses are positive, single-stranded with enveloped RNA in their structure. They commonly institute in arthropods (mostly ticks and mosquitoes), and can seldom infect humans<sup>2,3</sup>. Dengue fever vectors are female mosquitoes named *Aedes Aegypti* and *Aedes Albopidus*<sup>4,5</sup>. Dengue fever is of global concern in sub-tropical and tropical countries for the past decade where 3.9 billion people are at risk in 128 countries i.e. 40% of the world population<sup>6,7</sup>.

Recent studies showed a prevalence estimate around 390 million people per year around the globe suffer from

dengue fever and out of these 0.5 million need indoor hospital care facilities<sup>7</sup>. The case fatality is estimated as 2.5% of the total indoor hospitalized patients<sup>7</sup>. The majority of this number comprised of children<sup>8,9</sup>. Several outbreaks of this pandemic have been encountered and reported in the Asia subcontinent. The prime victimized countries are India, Sri Lanka, and Pakistan<sup>10</sup>. In Pakistan first case of dengue dates back to 1994, in the largest city of Pakistan, Karachi<sup>11,12</sup>. In 2010, Lahore, a major city with second largest population in Pakistan had 16580 confirmed cases of dengue fever with more than 251 deaths, along with 5000 cases and 60 deaths confirmed from the rest of the country<sup>13</sup>. In Pakistan like other, developing nations with endemic malaria, clinical examination is usually the major tool for diagnosis and treatment, due to a lack of resources and availability of laboratory facilities. Since both diseases are endemic and presenting symptoms of similar nature, a thorough knowledge of both diseases is essential for improving diagnosis on a clinical basis. A study conducted in Karachi on 90 general practitioners concluded that despite having basic knowledge of the disease, the majority of GPs in the area needed training for their management and recent preventions updates<sup>14</sup>. Another study conducted on students of a Sind University concluded that almost 55% students were unaware of the type of mosquito, 48% did not know the breeding environment and bite timing of agent<sup>15</sup>.

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It is hard to understand that even after having large number of annual reported dengue fever cases with series of outbreaks in the many cities of Pakistan, still not much research work is conducted on the knowledge, attitude and practice aspects of dengue and its control in this country except a few hospitals based studies

**MATERIAL AND METHODS**

A prospective cross-sectional study was carried in a private medical college of Lahore. The respondents were provided complete information about the study prior to answering a structured questionnaire. The questionnaire was to assess respondent’s knowledge and perception towards dengue fever. Respondent sample size was drawn by using non-probability and convenience sampling method from the students present in the medical college. The sample frame included all the medical students enrolled in first four years of MBBS (Basic Sciences 1<sup>st</sup> and 2<sup>nd</sup> year, while Pre-clinical Sciences 3<sup>rd</sup> and 4<sup>th</sup> Year). A total of 300 medical students were approached at a rate of 75 students per class. The information collected from the respondent on the basis of the survey questionnaire was entered in IBM SPSS 23.0 statistical software for analysis of the data. Prior to filling of questionnaire every respondent provided a voluntary consent for the study. All respondents were assured that the information shared through questionnaire will be kept confidential and anonymous.

**RESULTS**

Among the respondent’s females were (67%) and males were (33%) (Table 1). Among these respondents, pre-

clinical sciences 150 students have (100%) knowledge about fever, (87%) for bleeding and (69%) for muscular fatigue and joint pains while basic sciences students have only (100%) knowledge for fever, (17%) for bleeding and (09%) for muscular fatigue (Fig. 1). Out of 300 respondents, (100%) of both basic and pre-clinical sciences students responded yes to Mosquito bite while (81%) of pre-clinical and (49%) of the basic sciences responded blood transfusion as second mode of transmission (Fig.. 2). Almost (32%) from pre-clinical sciences and (11%) basic sciences responded yes for Ades Egypti while both gave maximum yes response (65%) to Anopheles (Table 2). Out of total pre-clinical students only (51%) responded a yes to clean pot water as breeding place of dengue mosquito while basic sciences only (19%) (Table 3). Among the 300 students of both pre-clinical and basic sciences 100% responded yes to usage of net as main method of prevention from dengue fever while (95%) of pre-clinical sciences students responded to covering of water pots as second preventive measure against dengue fever (Table 4).

Table1: Frequency of the respondents as per their respective professional years:

Class	Total		
	Male	Female	Total
1st Year	27	48	75
2nd Year	22	53	75
3rd Year	24	51	75
4th Year	26	49	75
Total	99	201	300

Table 2: Knowledge about type of dengue vector among medical students.

Vectors	Yes		Total
	Pre-clinical 3 <sup>rd</sup> & 4 <sup>th</sup> Year	Basic Sciences 1 <sup>st</sup> & 2 <sup>nd</sup> Year	
Aedes Egypti	47(32%)	17(11%)	64(21%)
Culex	11(7%)	15(10%)	26(9%)
Anopheles	89(59%)	106(71%)	195(65%)
Others (Tsetse Fly / Drosophila)	03(2%)	12(8%)	15(5%)
Total	150(100%)	150(100%)	300(100%)

Table 3: Knowledge regarding the breeding sites of dengue vector among medical students:

Vectors	Pre-clinical 3 <sup>rd</sup> & 4 <sup>th</sup> Year		Basic Sciences 1 <sup>st</sup> & 2 <sup>nd</sup> Year		Total	
	Yes	No	Yes	No	Yes	No
Clean water in pots	77	73	28	122	105	195
Stagnant dirty water	11	139	133	17	144	156
Water in cement bath tubs	36	114	106	44	142	158
Water in Old Tyres	13	137	12	138	25	275
Mud in Flower Pots	08	142	88	62	96	204
Others (Cans / Tins / Bottles)	07	143	76	74	83	67

Table 4: Knowledge regarding the preventive strategies of dengue fever among medical students

Sign & Symptoms	Pre-clinical 3 <sup>rd</sup> & 4 <sup>th</sup> Year		Basic Sciences 1 <sup>st</sup> & 2 <sup>nd</sup> Year		Total	
	Yes	No	Yes	No	Yes	No
Covering of water containers	143	07	23	127	166	134
Using nets	150	00	150	00	300	00
Disposal of old tyres	47	103	15	135	62	238
Changing of pot water	19	131	27	123	46	254
Addition of salt in pot water	21	129	03	147	24	276
Drinking fresh juices	07	143	78	72	85	215
Covering Bodies	53	97	41	109	94	206

Fig. 1: Medical students' knowledge about signs and symptoms of dengue fever.

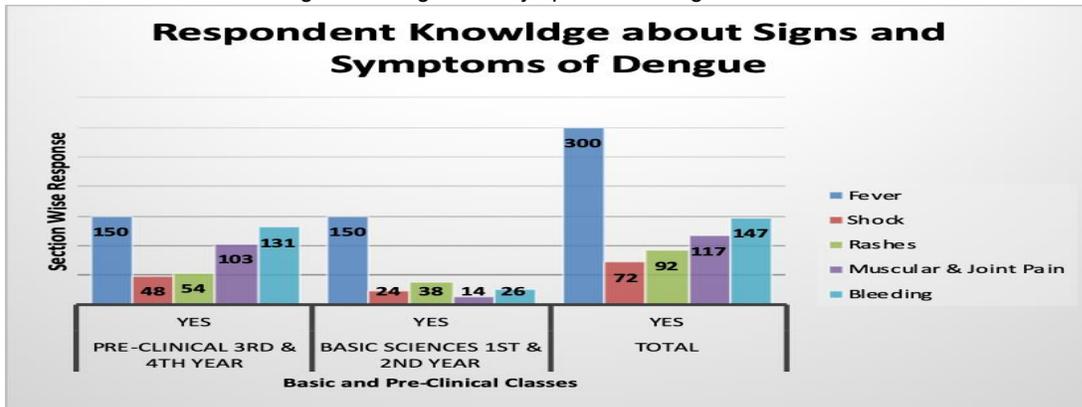
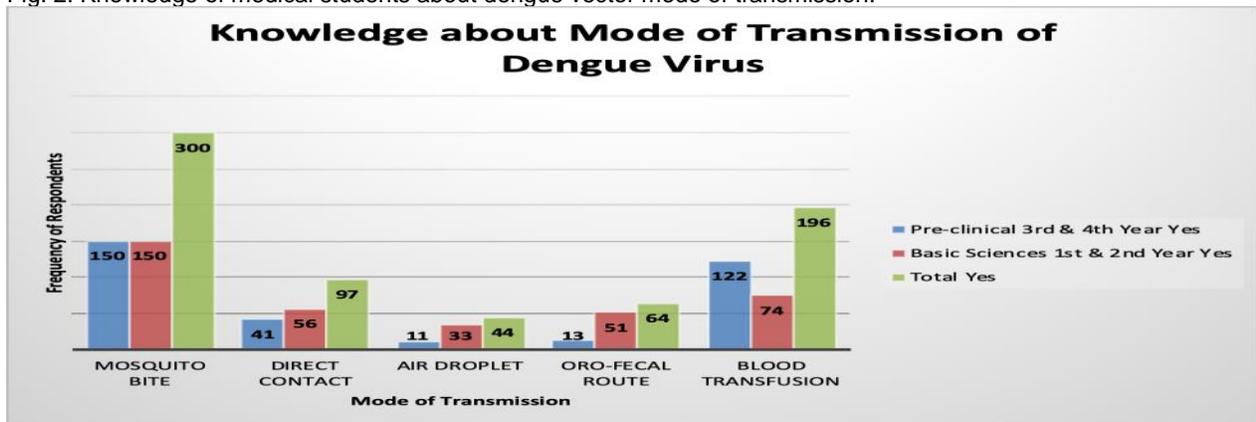


Fig. 2: Knowledge of medical students about dengue vector mode of transmission.



## DISCUSSION

The study was carried out to assess the knowledge and perceptions regarding dengue fever among students of a private medical & dental college. This study provided some beneficial results while assessing these respondents, which can help in improving medical curriculum and general community behaviors towards this infectious disease. The findings of this study showed that overall; there are relatively good attitudes and practices regarding dengue fever control among medical students despite a low level of clinical knowledge that included the information pertaining to the vector and clinical presentation of the dengue fever.

The knowledge about dengue fever of basic sciences that 1<sup>st</sup> year and 2<sup>nd</sup> year medical students was significantly low as compared to pre-clinical 3<sup>rd</sup> and 4<sup>th</sup> year students. The majority of the basic sciences students had low information about the signs and symptoms and preventive strategies to avoid outbreak of dengue fever. The difference is supported by the fact that pre-clinical 3<sup>rd</sup> and 4<sup>th</sup> year students are having regular community medicine classes, clinical subject's exposure and direct involvement in patient care. Majority of respondents were unaware about the covering of water containers and usage of mosquito nets for preventing spread of dengue fever. This knowledge can be a tool in reducing the breeding of vectors and directly minimizing the spread of dengue fever<sup>13-14</sup>.

A similar study done on 1<sup>st</sup> year medical students of Lahore Medical and Dental College by Mirza et.al. showed altogether opposite results. It was found in the study that knowledge; attitudes and perceptions of 'first year' medical students were adequate, even the participants had information about the vector, clinical picture, complications and diagnosis of the dengue fever<sup>16</sup>. This was encouraging in a way that the medical students had a much-elaborated information at a very early learning stage due to better recall memory, unlike our study sample that was not equipped with satisfactory knowledge in those early years of medical college.

Also, studies in general population show that there is lack of knowledge about sign & symptoms like bleeding & rashes, which can be leading information in making diagnosis of the dengue fever and can affect the health of the patient<sup>17</sup>. A study was conducted on students of a model school of Islamabad to assess their knowledge about dengue. It revealed poor knowledge among students of class 9 and 10, though they were exposed to different awareness campaigns about dengue<sup>19</sup>.

By propagating clinical picture of dengue in masses, there is a possibility that patients can report earlier to their healthcare providers, which can largely help in better prognosis. Overall, this study showed that our respondents of pre clinical section had good knowledge and practices regarding dengue fever as compared to basic sciences classes, whereas other studies showed some similar and other different results. It would be premature to make a

generalized opinion about the status of knowledge, attitudes and practices of the common public. Also, our study is done in a private institute where students belong to good financial status and there is a possibility that the satisfactory practices noted are because of the accessibility of knowledge they may have early in their schools or communities they have lived in. It is therefore important to mention that our results may not be depictive of majority of the population, but can only relate to a certain social class and literacy status. This study though significantly supports and provides knowledge and perception level of the medical students that may help in improving the preventive strategies and thus control outbreak of dengue fever but there were few limitations related to premises, sample size and resources thus we are unable to generalize this study. Generally, it cannot cover the whole picture of knowledge and practices about dengue in our region.

It is felt that more work is required to learn about the information status & perceptions of the population, improvise the strategies in spreading the information and creating a system to implement the knowledge. A multi-disciplinary model with community leadership, public health policies and media industry can all work together in making the knowledge accessible to everyone, in first stage and later practicing the learned material, in second stage can be helpful in controlling the disease.

## CONCLUSION

The knowledge level of pre-clinical medical students was much better than the basic sciences students who could not identify the name of dengue vector, their breeding place, unaware of dengue fever main sign/symptoms and preventive measures. The two senior classes that is third and fourth year were more knowledgeable as compared to first and second year highlighting a dire need of preventive medicine session in junior classes. It is concluded that dengue awareness health education campaigns like focus group discussion, seminars and conferences may be arranged for medical students in order to raise their level of knowledge and perception.

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