



E-ISSN: 2707-2835

P-ISSN: 2707-2827

www.pharmacognosyjournal.com

IJPLS 2021; 2(2): 28-35

Received: 04-10-2021

Accepted: 09-11-2021

Rajia Sultana Nijhu

Department of Pharmacy,
Stamford University
Bangladesh, 51, Siddeswari
Road, Dhaka-1217,
Bangladesh

Ambia Khatun

Department of Pharmacy,
Stamford University
Bangladesh, 51, Siddeswari
Road, Dhaka-1217,
Bangladesh

Md. Abdul Mannan

Department of Pharmacy,
Stamford University
Bangladesh, 51, Siddeswari
Road, Dhaka-1217,
Bangladesh

Corresponding Author:

Md. Abdul Mannan

Department of Pharmacy,
Stamford University
Bangladesh, 51, Siddeswari
Road, Dhaka-1217,
Bangladesh

Knowledge and awareness of chikungunya and public health assessment of Dhaka and Brahmanbaria, Bangladesh

Rajia Sultana Nijhu, Ambia Khatun and Md. Abdul Mannan

DOI: <https://doi.org/10.33545/27072827.2021.v2.i2a.47>

Abstract

This is a survey initiative to assess Chikungunya knowledge and awareness, as well as public health in Dhaka and Brahmanbaria, Bangladesh. In Dhaka and Brahmanbaria district, a community-based cross-sectional research was undertaken. In December of 2020, formal questionnaires were used to collect data. Descriptive and inferential statistics were used to analyze the data. People's awareness of Chikungunya was tested for significant differences and correlated with demographic characteristics. The illustrations depict the graphical view, while the discussion section provides a succinct yet thorough explanation. Despite the fact that nearly all of the respondents had heard of Chikungunya, only half of them (50%) correctly identified Chikungunya as a disease spread by the *Aedes* mosquito. A total of 47% of people believed that Chikungunya vectors breed in unclean storage water. The majority of study participants were aware of the symptoms of Chikungunya infection, notably high fever (78.0%) and joint discomfort (14.6%). Chikungunya is believed to be avoidable by the majority of respondents (88%). Mosquito coils (15.1%), mosquito nets (28.4%), and pesticide spray (19%) are among the strategies used by study participants to avoid mosquito bites. The most essential and valuable source of information on the condition was deemed to be social media. This research provides a complete analysis of chikungunya knowledge and awareness, as well as a public health evaluation in Dhaka and Brahmanbaria, Bangladesh.

Keywords: Chikungunya, knowledge, awareness, respondents, symptoms

Introduction

This study provides a basic summary of public knowledge based on their age, which may be compared for future research. Chikungunya is a tropical illness that is mostly found in Africa, South Asia, and Southeast Asia. The chikungunya virus (CHIKV) is a classical arbovirus with a single-stranded positive-sense RNA genome that is transmitted to humans by female *Aedes* mosquitoes, primarily *Aedes aegypti* and *Aedes albopictus* (Brighton *et al.*, 1983) [1]. The typical symptoms of CHIKV infections are commonly confused with those of a variety of tropical illnesses, such as dengue fever, leptospirosis, and rickettsioses, and can be difficult to distinguish clinically. As a result, the true scope of CHIKV zoonoses is still poorly known and underestimated, despite the fact that it is constantly increasing (Halliday *et al.*, 2015) [2]. The World Health Organization reported the first local CHIKV transmission in the Americas in 2013–14. According to epidemiologic and disease dynamics research, the virus affects roughly 3 million individuals each year, and 1.3 to 2.7 billion people live in places where CHIKV transmission is a danger (Nsoesie *et al.*, 2016) [3]. Chikungunya is a viral infection caused by the CHIK virus, a Togaviridae family virus. The virus is spread through mosquito bites by infected daytime biting females, mostly *Aedes aegypti* and *Aedes albopictus*. They bite most often in the early morning and late afternoon, and are most commonly seen in and near cities and suburbs. In Africa, certain mosquitoes that carry Chikungunya reside in wooded environments. Monkeys and other wild animals are thought to be viral reservoirs or carriers (Keller 2014) [4]. CHIKV, like many other viral zoonoses in the tropics, has no distinctive symptoms or pathognomonic signs. Acute onset of fever and polyarthralgia, primarily in the limb extremities, is described after a brief incubation period of around 1 to 5 days in the most common type of the illness (72–97 percent of cases). Skin rash, headache, back discomfort, myalgia, and nausea are some of the other symptoms. Joint pain is frequently severe, and it can last for weeks or years.

Neurological, cardiovascular, hepatic, dermatological, and respiratory symptoms, as well as miscarriages and newborn infections, are common in the most severe version of the condition. Although only a few people require hospitalization, CHIKV infection has resulted in a few fatalities (Keller 2014) [4]. CHIKV may infect a large percentage of a community in a short period of time, and it has a major impact on the productivity of afflicted people. As a result, epidemics of this virus harm not just the afflicted person and his or her family, but the entire community. The crippling disease places a huge strain on a country's whole health infrastructure, particularly in low- and lower-middle-income nations like Bangladesh. To limit the number of mosquito vectors, it is widely advised that nations establish and maintain the ability to identify diseases, manage patients, and apply social communication initiatives. However, in nations like Bangladesh, both capacity building and access to healthcare facilities are likely to be difficult, thus the true frequency, clinical extents, and total impact remain unknown (WHO 2017) [5]. Chikungunya outbreaks have been documented in over 60 countries so far (Wahid *et al.*, 2017) [6]. One of CHIKV's endemic locations is the Indian subcontinent. Since 2000, the subcontinent has had at least 11 significant CHIKV outbreaks, with Bangladesh seeing a large epidemic in 2017 and two lesser outbreaks in 2008 and 2011 (Kabir *et al.*) [7]. In 2008, two communities in Bangladesh's northwestern area reported the first known epidemic of chikungunya. A full description on the outbreak's genesis and clinical manifestations is unavailable. A second chikungunya epidemic was detected in the Dohar-Dhaka region in November 2011. There were no fatal cases documented, and the clinical signs of the epidemic were consistent with typical CHIKV infection, despite the high attack rate (30%) within the circulation region. Despite inconsistencies in statistics on which age and gender groups suffered the most, children were less susceptible and recovered more quickly. In 2013, 2015, and 2016, there were more reports of sporadic CHIKV infection. The most serious chikungunya epidemic in Bangladesh occurred between April and September 2017, when a large number of positive cases were recorded from 23 districts throughout the nation, with over 13,000 clinically confirmed cases in Dhaka alone. The CHIKV strain reported in the 2017 Dhaka epidemic was genetically different from Bangladesh/0810atw, the strain found in the previous outbreak (Huang *et al.*, 2009) [8]. The epidemic strains formed a new cluster inside the Indian Ocean clade, indicating that they are novel variations, according to phylogenetic research. In addition to a wide range of symptoms, 83 percent of patients in Dhaka had a 'poor' to 'very low' overall quality of life, and 30% had ambulatory issues due to severe arthropathy. However, the long-term consequences of CHIKV infection on hematological indicators have yet to be investigated (Saeed *et al.*, 2020) [9].

Materials and methods

Study area and population

The study was conducted in Dhaka and Brahmanbaria, Bangladesh, from December 12 to December 31, 2020, utilizing in-person structured interviews and web based questionnaires produced in survey forms. Dhaka is Bangladesh's financial, economic, and entertainment center, accounting for up to 35 percent of the country's GDP.

Dhaka's population, size, social and economic variety have all increased dramatically since its inception as a modern capital city, and the city is now one of Bangladesh's most highly industrialized districts. Dhaka is a prominent beta-global city since it is home to various worldwide firms' headquarters. It became a megacity in the twenty-first century. In 2019, the population of Dhaka's metro region was 20,284,000, up 3.61 percent from 2018. In 2018, the population of Dhaka's metro region was 19,578,000, up 3.62 percent from 2017. With a population of 8.9 million persons within the city boundaries and over 21 million residents in the Greater Dhaka Area, it is the world's ninth-largest and sixth-most densely populated metropolis. Dhaka is Bangladesh's economic, political, and cultural capital. Brahmanbaria is a district in eastern Bangladesh located in the Chittagong Division. Geographically, it is mostly farmland and is topographically part of the Gangetic Plain. It is bounded by the districts of Kishoreganj and Habiganj to the north, Narsingdi District and Narayanganj to the west, Comilla to the south, and the Indian state of Tripura to its east. Brahmanbaria District area 1927.11 sq km, located in between 23°39' and 24°16' north latitudes and in between 90°44' and 91°51' east longitudes. It is bounded by kishoreganj and habiganj districts on the north, comilla district on the south, Habiganj district and Tripura state of India on east Meghna river, Kishoreganj, Narsingdi and Narayanganj districts on the west. Population: Total 2398254; male 1205552, female 1192702.

Study Design

A cross-sectional survey was conducted in Dhaka and Brahmanbaria, Bangladesh, from the 13th to the 21st of December 2020, utilizing in-person structured interviews. Each of the individuals included in the study gave their written informed permission. The study used a self-designed and pre-tested structured questionnaire with the study's goal in mind.

Data Collection

A total of 15 questions were included in the survey. Knowledge of Chikungunya, diagnosis, illness state, mechanism, symptoms, therapy, pathology, risk factors, and prevention are among the socio-demographic variables and some knowledge-related questions. WHO recommendations were used to identify the alternatives or actions. The number of options retained under the heads of preventative measures may vary, although for other issues it was set. The test included questions with both single and multiple correct answers. After receiving useful feedback from research specialists and piloting the instrument, necessary changes were made, including the addition of appropriate alternatives beneath each of the questions and changes to the instrument's language. All relevant information on the randomly chosen subjects, such as responders' names, district names, and contact information were noted.

Data analysis and presentation

The data was entered into online survey spreadsheets for Windows and descriptive statistics were calculated using Microsoft Office Excel 2016 Professional Plus. According to the study goals, qualitative data was manually transcribed, classified, and summarized. Themes that recurred and emerged were recognized and arranged into logical categories, with verbatim reporting as needed.

Quantitative and qualitative data were combined for complementary analysis to ensure completeness.

Result

Survey outcomes from data sheet shown as diagrams

Total survey responders: 100 person including men and women.

Survey area: Dhaka and Brahmanbaria.

A. Percentage from responding area personnel

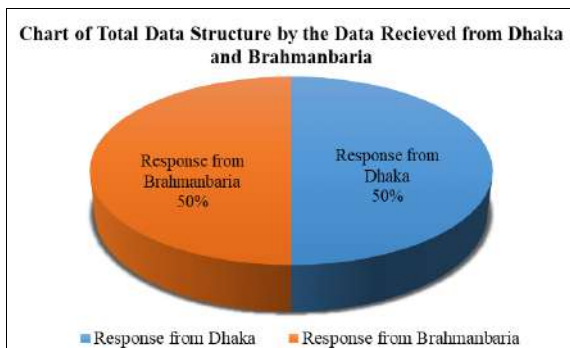


Fig 1: Percentage from responding area personnel.

B. Percentage of responder's gender

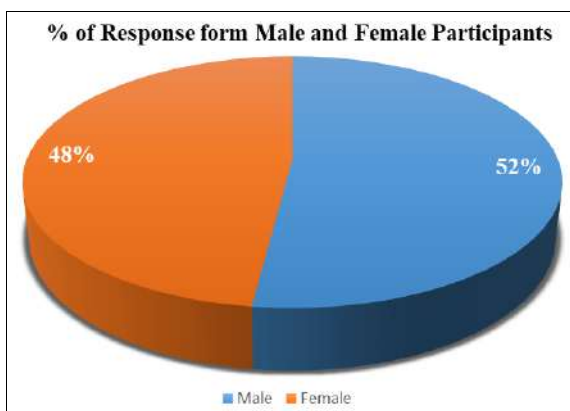


Fig 2: Percentage of responder's gender

C. Percentage comparison between responders age

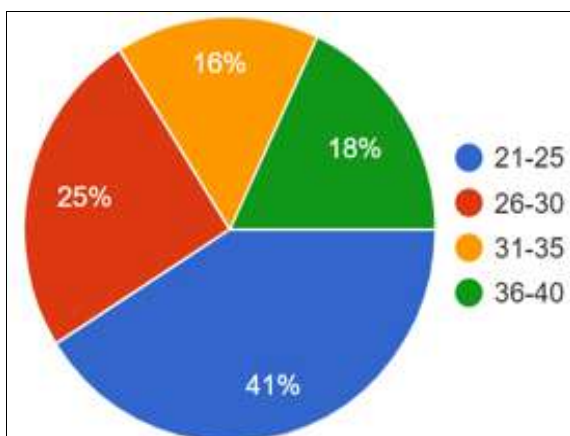


Fig 3: Percentage comparison between responders age

D. Percentage comparison between responders' occupation

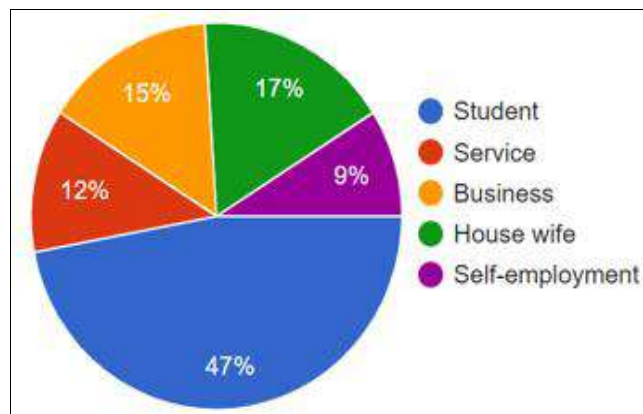


Fig 4: Percentage comparison between responders' occupation

E. Peoples knowledge on Chikungunya disease according to their age

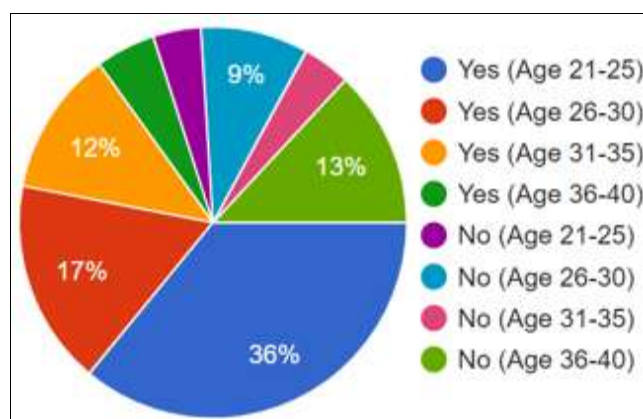


Fig 5: Peoples knowledge on Chikungunya disease according to their age

F. "Mosquito can transmit Chikungunya"- percentage of affirmative and negative responses according to their age

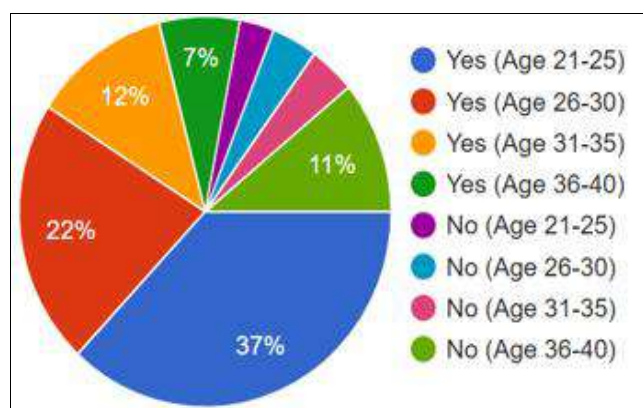


Fig 6: "Mosquito can transmit Chikungunya"- percentage of affirmative and negative responses according to their age

G. Knowledge about symptoms of Chikungunya

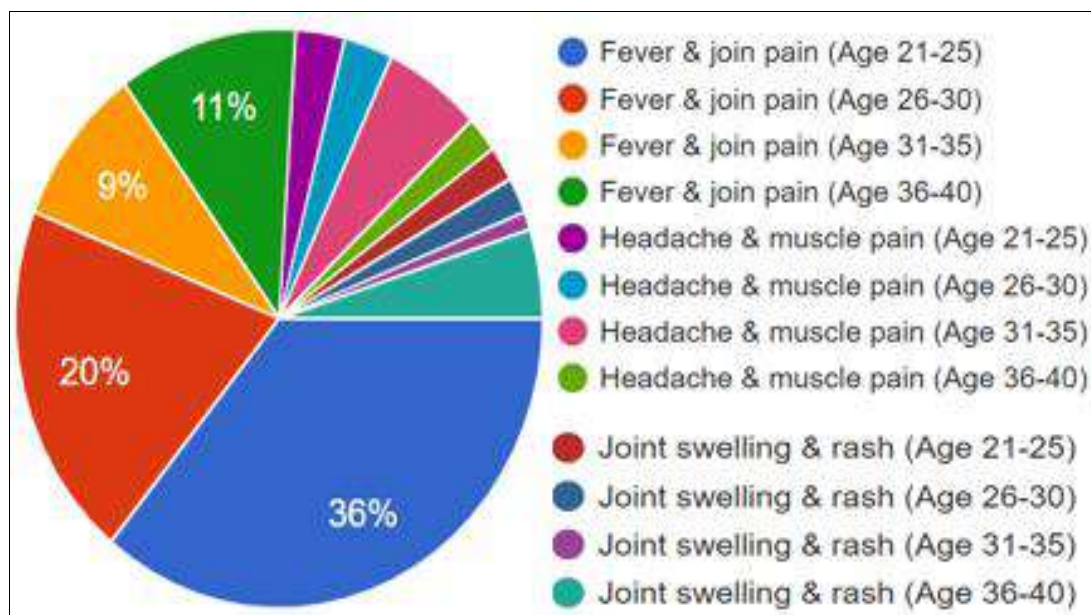


Fig 6: Knowledge about symptoms of Chikungunya

H. First and second choice of diagnosis of Chikungunya

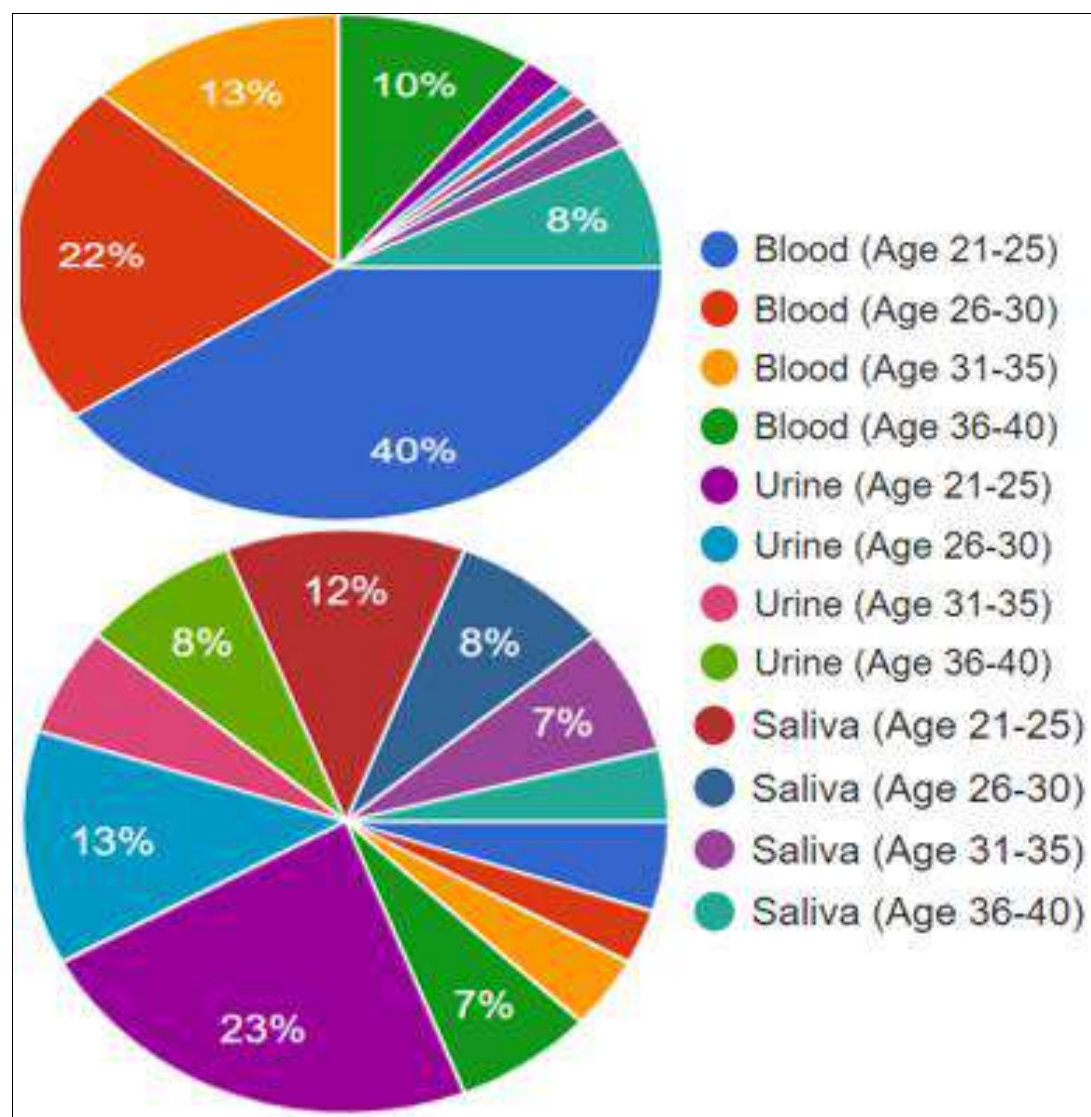


Fig 7: First and second choice of diagnosis of Chikungunya

I. Peoples idea on the clinical management of Chikungunya disease

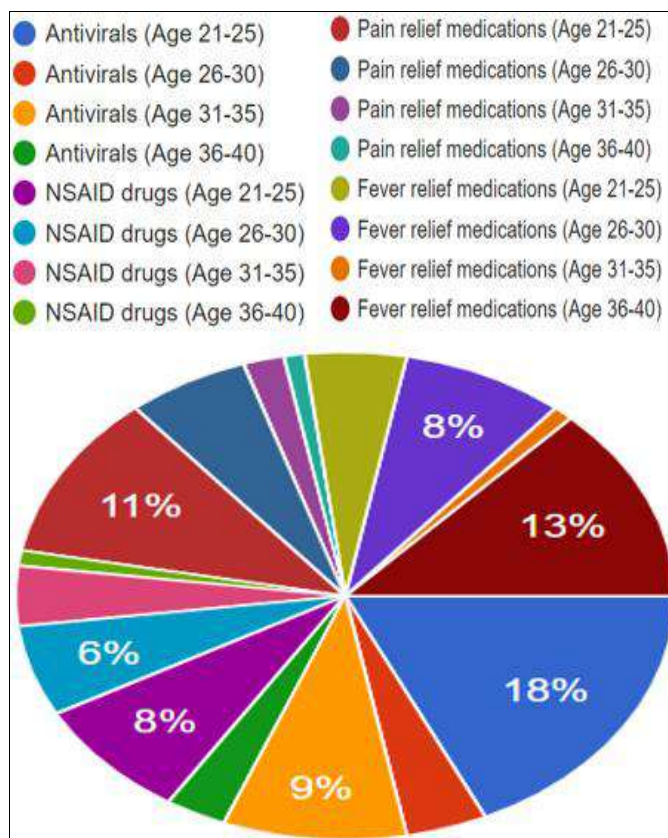


Fig 8: Peoples idea on the clinical management of Chikungunya disease

J. Awareness and knowledge against Chikungunya among the people

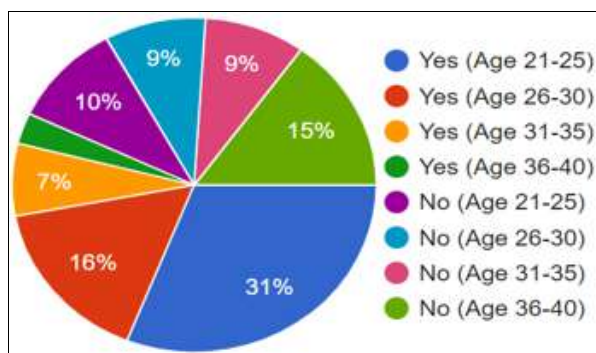


Fig 9: Awareness against Chikungunya among the people.

L. Percentage who are about to think that Chikungunya is an infactious disease

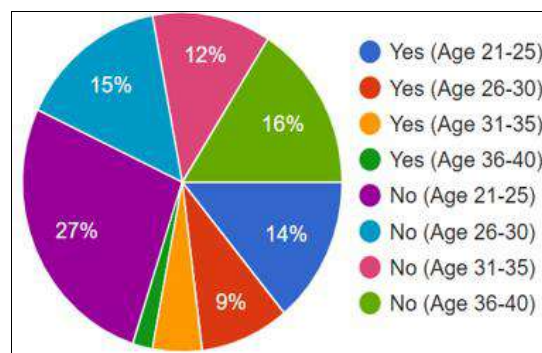


Fig 11: Percentage who are about to think that Chikungunya is an infactious disease

K. Knowledge of awareness about Chikungunya among the people

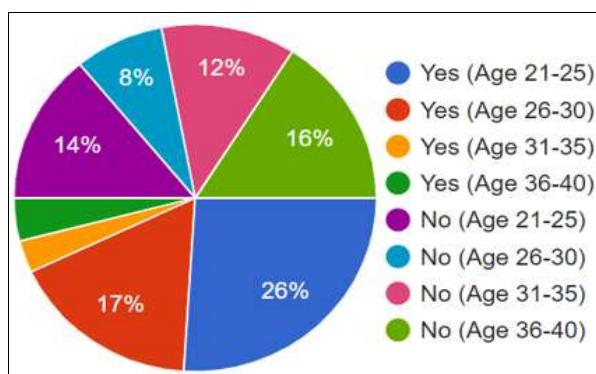


Fig 10: Knowledge of awareness about Chikungunya among the people

M. Awareness of any existing or planned activities aimed at preventing or controlling possible outbreaks of Chikungunya

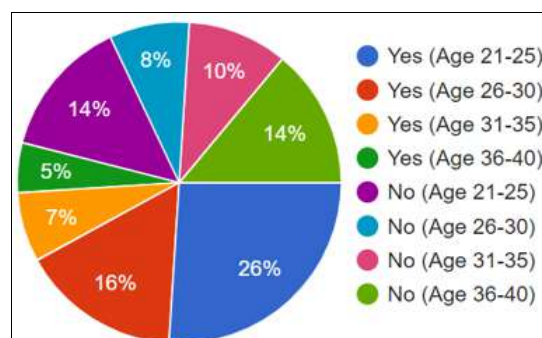
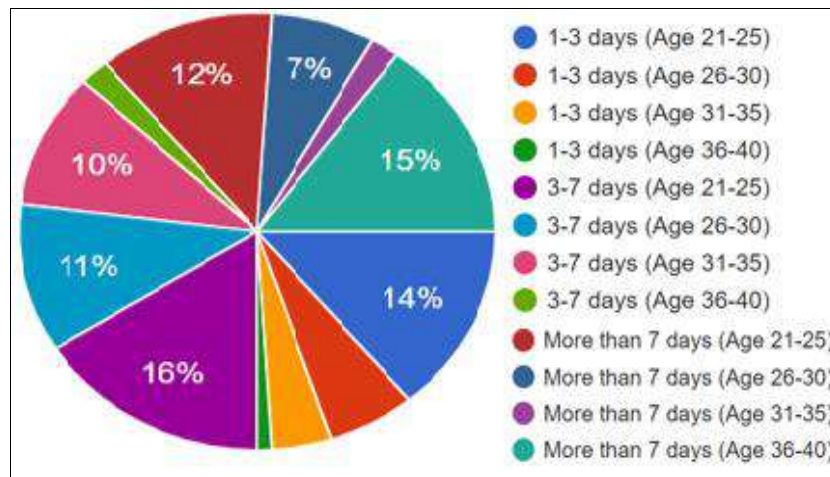
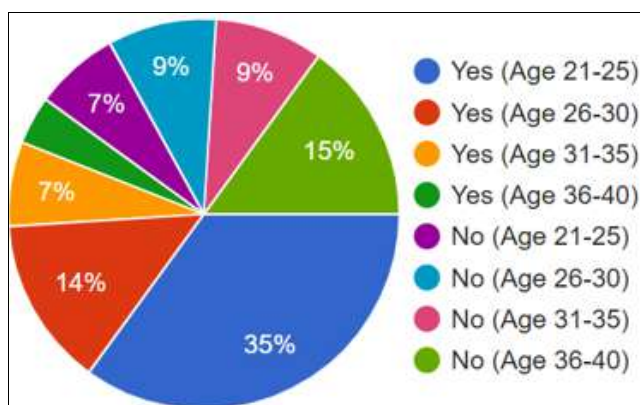
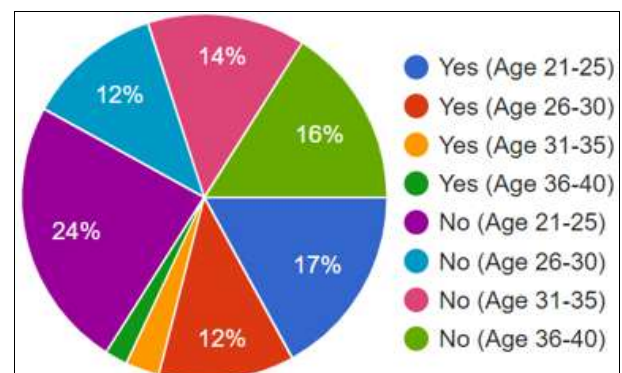
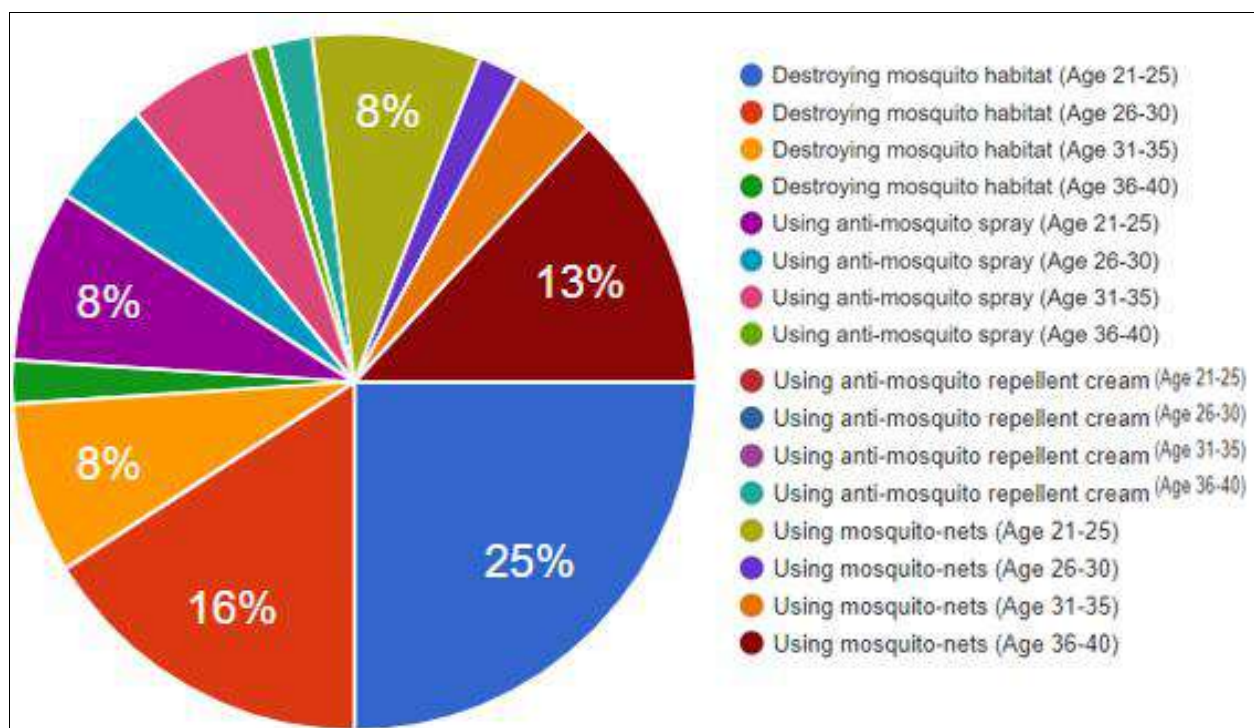


Fig 12: Awareness of any existing or planned activities

N. Responses about the number of days; symptoms of chikungunya begin after being bitten by an infected mosquito**Fig 13:** Percentage of number of days of symptoms**O. *Aedes aegypti*, responsible for Chikungunya or not:****Fig 14:** *Aedes aegypti*, responsible for Chikungunya or not.**P. Peoples opinion on their knowledge on Chikungunya****Fig 15:** Peoples opinion on their knowledge on Chikungunya**Q. What we can mostly do to prevent Chikungunya disease, people's opinion on diagram****Fig 16:** People's opinion on prevention method

R. A brief comparison between the data of Dhaka and Brahmanbaria

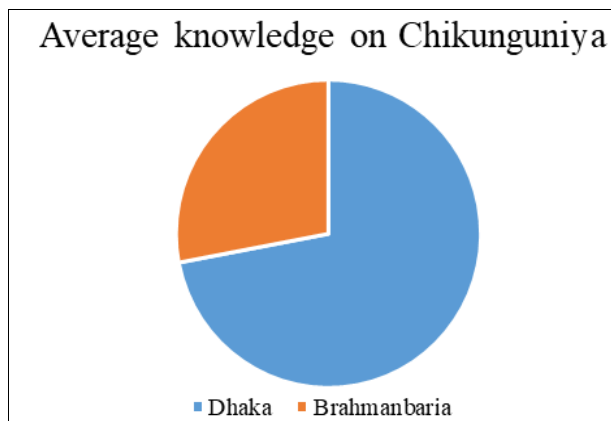


Fig 17: Average knowledge on Chikungunya between Dhaka and Brahmanbaria

S. Awareness about Chikungunya according to age difference from the data of Dhaka and Brahmanbaria

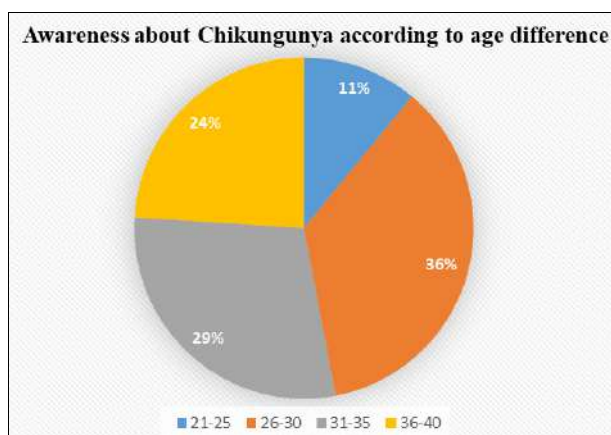


Fig 18: Awareness about Chikungunya according to age difference from the data of Dhaka and Brahmanbaria.

Discussion

This survey received 100 responses, which were displayed in the above diagrams to represent the results of the survey operation. The following are the key outcomes of this survey operation:

- The majority of the participants are between the ages of 25 and 35 and are students.
- Around 36% of people have some awareness of Chikungunya, a mosquito-borne illness.
- Only 4% of people, mostly between the ages of 21 and 35, are unaware of the Chikungunya virus.
- About 78 percent of individuals know enough about Chikungunya's transmission method, while the remainder are completely unaware of it; 11 percent of them are between the ages of 36 and 40.
- The fact that roughly 70% of individuals are aware of the symptoms of Chikungunya is a positive indicator. The majority of the participants are between the ages of 21 and 30.
- Blood is used as a chikungunya diagnostic sample by more than 70% of persons.
- It is a significant fact that the majority of individuals are unaware of the true clinical care of Chikungunya.

They make a variety of remarks about it, the most of which are unsuitable. However, over 90% of persons of all ages said they use a mosquito net as their major method of protection against Chikungunya.

- Only half of them are aware of the Chikungunya risk factors.
- Only 30% of them believed Chikungunya was an infectious condition, which is appalling.
- 46% of the population is unaware that planes are being used to combat probable Chikungunya outbreaks.
- The percentage of persons who have enough information about Chikungunya is around 50-50.
- 51% of respondents believe that removing mosquito habitat is beneficial in preventing Chikungunya, and 27% desire to employ mosquito nets to do so.

Conclusion

People in the community lacked in-depth knowledge about Chikungunya's breeding grounds and illness preventive strategies. Controlling the chikungunya pandemic may need health education and community awareness. Chikungunya fever epidemics have erupted in numerous sections of the SEA (South East Asia) region and abroad in recent years. Although the disease is self-limiting, big outbreaks can result in high morbidity, which has a significant social and economic impact. The illness should be avoidable, and prevention would include a well-thought-out strategy in addition to education and awareness of early warning symptoms. Integrated vector management, which includes removing breeding grounds, employing anti-adult and anti-larval methods, and ensuring personal safety, will help to avoid an epidemic. Community empowerment and mobilization are critical for chikungunya prevention and control. Adult mosquito control tactics, such as fogging, which are frequently used by local governments as a single instrument, may not be sufficient to effectively limit an epidemic.

Competing interests

There are no potential conflicts of interest in this paper's publishing.

Acknowledgements

The authors are thankful to the Chairman, Department of Pharmacy, Stamford University Bangladesh.

Author contributions

All authors contributed significantly to the conception and design, data acquisition, and data analysis and interpretation; participated in the drafting of the article or critically revised it for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agreed to be accountable for all aspects of the work. According to the guidelines of the International Committee of Medical Journal Editors (ICMJE), all writers are entitled to be authors.

References

- Brighton SW, Prozesky OW, De La Harpe AL. Chikungunya virus infection-A retrospective study of 107 cases. South African Medical Journal. 1983;68(9):313-5.
- Halliday JE, Allan KJ, Ekwem D, Cleaveland S, Kazwala RR, Crump JA. One health: Endemic

- zoonoses in the tropics: A public health problem hiding in plain sight. *The Veterinary Record*. 2015 Feb 28;176(9):220.
3. Nsoesie EO, Kraemer MU, Golding N, Pigott DM, Brady OJ, Moyes CL, *et al*. Global distribution and environmental suitability for chikungunya virus, 1952 to 2015. *Euro surveillance: bulletin Europeensur les maladies transmissibles = European communicable disease bulletin*, 2016, 19, 21(20).
 4. Keller DM. Debilitating Chikungunya Virus Hits the US. *Medscape*, 2014.
 5. WHO Media Center. Chikungunya. World Health Organization, 2017.
 6. Wahid B, Ali A, Rafique S, Idrees M. Global expansion of chikungunya virus: mapping the 64-year history. *International Journal of Infectious Diseases*. 2017 May 1;58:69-76.
 7. Kabir I, Dhimal M, Müller R, Banik S, Haque U. The 2017 Dhaka chikungunya outbreak. *Lancet Infect Dis*. 2017, 1;17(1118):30564-9.
 8. Huang JH, Yang CF, Su CL, Chang SF, Cheng CH, Yu SK, Lin CC, Shu PY. Imported chikungunya virus strains, Taiwan, 2006–2009. *Emerging infectious diseases*. 2009,15(11):1854.
 9. Saeed Anwar, Jarin Taslem Mourosi, Md. Fahim Khan, Mohammad Ohid Ullah, Olivier Vanakker M, Mohammad Jakir Hosen. Chikungunya outbreak in Bangladesh Clinical and hematological findings, 2017 Feb 24, 2020.