COMPARATIVE STUDY BETWEEN JALALABAD AND LAHORE ABOUT DENGUE FEVER AND LIFESTYLE OF PEOPLE AS A PREVENTIVE MEASURE FROM MOSQUITOES

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Abstract:
Dengue fever, a mosquito-borne viral illness, continues to pose a significant threat to public health, particularly in densely populated tropical and subtropical regions. This comparative study explores the influence of lifestyle-related factors on dengue prevalence by analyzing two contrasting urban environments: Jalalabad, Kyrgyzstan (a region with no reported dengue cases) and Lahore, Pakistan (where dengue is endemic).

Using structured questionnaires, data were collected from 300 participants (150 from each city), focusing on awareness, preventive behaviors, sanitation practices, and environmental conditions. Despite limited awareness about dengue in Jalalabad, participants demonstrated healthier lifestyle habits and better environmental management. Conversely, although Lahore respondents showed higher awareness of the disease, their preventive practices and environmental hygiene were less consistent.

The findings underscore a strong relationship between personal and communal lifestyle factors; such as water storage, dietary habits, sanitation, and mosquito protection measures and the likelihood of dengue transmission. The study concludes that enhanced public health education, behavioral interventions, and infrastructure improvements are essential for effective dengue control, particularly in high-risk areas. Promoting healthier lifestyles may serve as a key strategy in reducing the burden of vector-borne diseases globally.

Keywords: Dengue Fever, Mosquitoes, Vector borne diseases, Endemic, Sanitation

СРАВНИТЕЛЬНОЕ ИССЛЕДОВАНИЕ ЛИХОРАДКИ ДЕНГЕ И ОБРАЗА ЖИЗНИ ЛЮДЕЙ В ДЖАЛАЛ-АБАДЕ И ЛАХОРЕ КАК МЕРЫ ПРОФИЛАКТИКИ УКУСОВ КОМАРОВ

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Аннотация
Лихорадка денге, вирусное заболевание, переносимое комарами, продолжает представлять значительную угрозу для здоровья населения, особенно в густонаселенных тропических и субтропических регионах. Данное сравнительное исследование изучает влияние факторов образа жизни на распространенность лихорадки денге, анализируя два контрастных городских региона: Джалал-Абад, Кыргызстан (регион, где не зарегистрировано ни одного случая лихорадки денге) и Лахор, Пакистан (где лихорадка денге эндемична). С помощью структурированных анкет были собраны

данные у 300 участников (по 150 из каждого города), уделяя особое внимание осведомленности, профилактическим действиям, санитарным нормам и состоянию окружающей среды. Несмотря на ограниченную осведомленность о лихорадке денге в Джелалабаде, участники продемонстрировали более здоровый образ жизни и более эффективное управление окружающей средой. Напротив, хотя респонденты из Лахора продемонстрировали более высокую осведомленность об этом заболевании, их профилактические меры и гигиена окружающей среды были менее последовательны.

Результаты подчеркивают тесную взаимосвязь между личными и общественными факторами образа жизни, такими как запасы воды, пищевые привычки, санитария и меры защиты от комаров, и вероятностью передачи лихорадки денге. В исследовании сделан вывод о том, что повышение уровня информированности населения в области здравоохранения, поведенческие вмешательства и улучшение инфраструктуры имеют решающее значение для эффективной борьбы с лихорадкой денге, особенно в районах высокого риска. Пропаганда здорового образа жизни может служить ключевой стратегией снижения бремени трансмиссивных заболеваний во всем мире.

Ключевые слова: лихорадка денге, комары, трансмиссивные заболевания, эндемия, санитария

Introduction

Dengue fever is a mosquito-borne viral infection caused by four distinct serotypes of dengue virus, primarily transmitted by Aedes aegypti and Aedes albopictus mosquitoes [1]. Globally, dengue has become a major public health concern, with the World Health Organization (WHO) estimating that nearly half of the world's population is at risk [1]. It poses a major public health threat in tropical and subtropical regions, with an estimated 100–400 million infections annually [2]. The disease ranges from mild flu-like symptoms to severe forms like dengue hemorrhagic fever and dengue shock syndrome, which can lead to significant morbidity and mortality [1]. The global incidence of dengue has increased dramatically over the past two decades, fueled by climate change, rapid urbanization, poor sanitation, and global travel [2][3]. Despite efforts to develop vaccines, prevention still relies heavily on mosquito control and public awareness [1][3]. Notably, lifestyle factors such as hygiene practices, environmental cleanliness, and awareness levels play a critical role in dengue prevention [3] [4]. This study compares the prevalence of dengue and related lifestyle practices between two cities: Jalalabad, Kyrgyzstan (non-endemic), and Lahore, Pakistan (endemic).

Objectives

To study the impact of knowledge on prevention practice rating the sources of information about dengue fever and to access the level of public knowledge and prevention practice about dengue fever

To improve early diagnosis and case management. To defect epidemic early and to respond to potentially epidermias effectively. To strengthen monitoring and evaluation to ensure optimal programme implementation, Management and performances.

Rationale
It is alarming infection from last two years and death rate is increasing due to dengue virus in Pakistan.

Methodology
Study Design:

A comparative study is created to find the difference between the lifestyle and occurrence of dengue fever.

Study Area:

For our research, we choose Jalalabad, Kyrgyzstan and Lahore, Pakistan as research areas in which Jalalabad is taken as ideal or control group where occurrence of dengue is 0%

Study Duration:

We started our research from September 1, 2022 and finished on December 20, 2022.

Inclusion Criteria:

Study population includes workers of Jalalabad having education level of primary and secondary, and also workers of Lahore in Pakistan with same education level and age between 25-40 years old.

Exclusion Criteria:

We excluded the respondent that are not willing to participate in research, younger age, education level more than secondary and inconvenient for us to approach.

Study Sample:

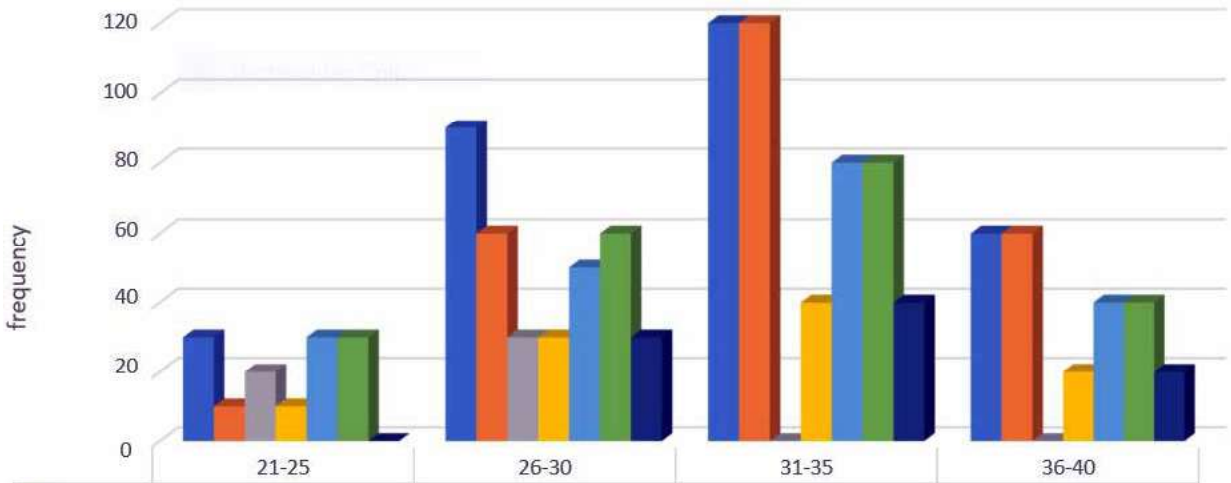
Total Sample size is 300 in which 150 from Jalalabad, Kyrgyzstan and 150 from Lahore, Pakistan. We choose non-probability, conventional sampling model for research due to language barrier and difficulty to approach people.

Study tool:

For research, we made demographic profile and knowledge-based questionnaire, we made social demographic profile which based on the age, marital Status, gender

profession, education level and nationality. We made 12 knowledge-based questions in which asked about knowledge regarding degree and life style of people. We analysed the data on SPSS for authentic results and calculation.

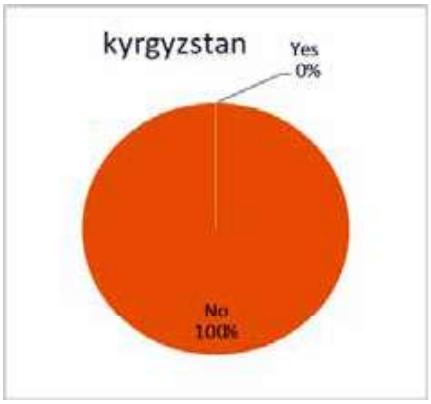
Results
Total respondents are 300 and they are workers of hostel and hotel from which 150 from Jalalabad and 150 from Pakistan, in which, we made four age groups, 21-25, 26-30, 31- 35, 36-40 in which 250 are married and 50 are unmarried. In our total respondents 100 are males and 200 are females from which 210 have education level primary and 90 have secondary education level.

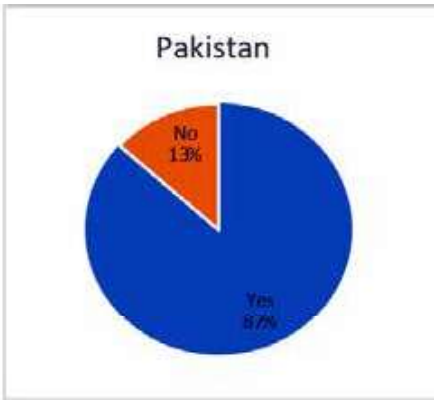


	21-25	26-30	31-35	36-40
People	30	90	120	60
Married	10	60	120	60
single	20	30	0	0
Male	10	30	40	20
Female	30	50	80	40
Primary	30	60	80	40
Secondary	0	30	40	20

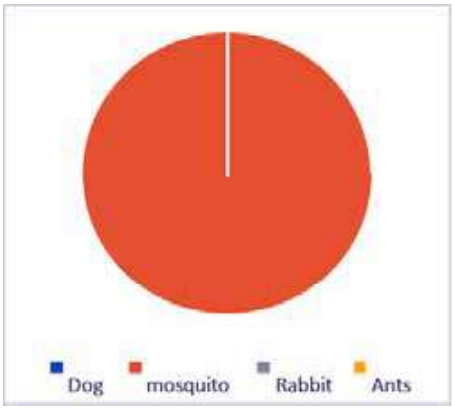
There are 12 questions regarding dengue virus and life style against mosquitoes that we asked from locals of Jalalabad and Lahore and analysed their answers as data for our result.

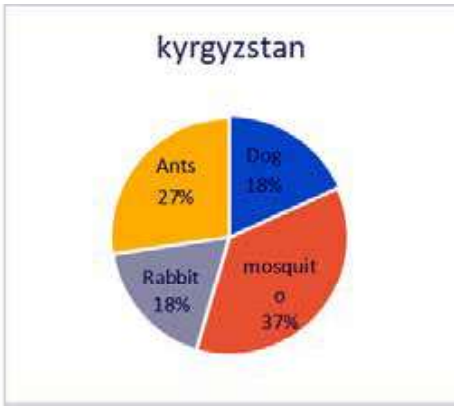
- In Kyrgyzstan 0% people know about dengue virus and 100% didn't know about it.
- In Pakistan, 87% people know about dengue virus and 13% people didn't know about dengue virus.



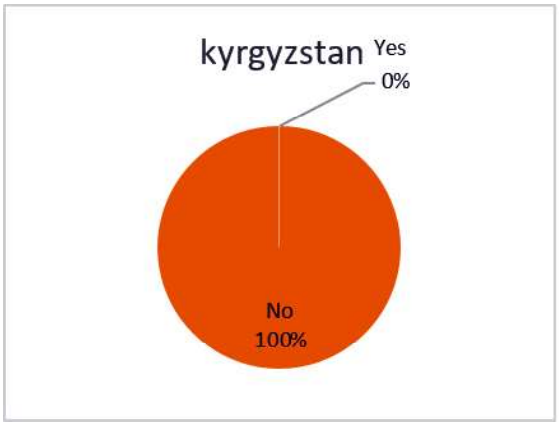


All Lahore respondents give right answer, mosquitoes and no one mark other answer like ant, rabbit, and dog. In Jalalabad, 27% marked Ants, 18% marked Dog, 18% marked Rabbit and 37% marked mosquitoes and these 37% marked right answer by chance because, they didn't know about dengue virus.

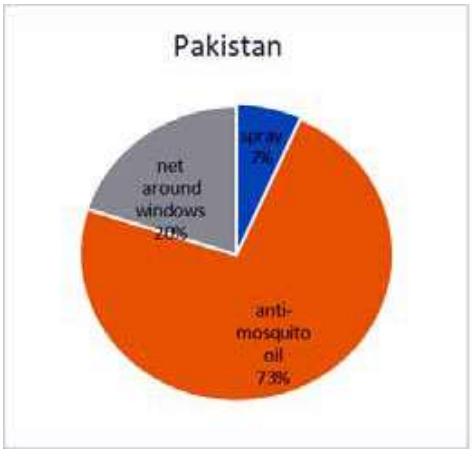


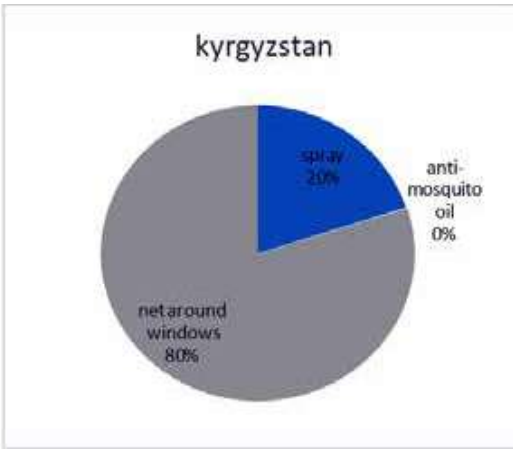


- 0% of Kyrgyzstan respondents is infected by dengue virus therefore 100% respondents marked the answer No .67% of Lahore respondents is infected in their life by dengue virus and 33% didn't infected by dengue virus



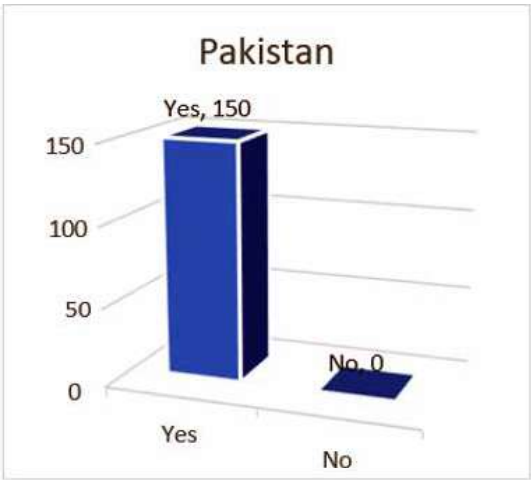
- Lahore respondents, 20% use net around Windows, 7% use mosquitoes spray and 73% people use anti- mosquitoes' oil as a preventive measure for mosquitoes.
- Jalalabad respondents, 20% use spray and 80% use net around Windows as preventive measures and no one use anti- mosquito's oil.

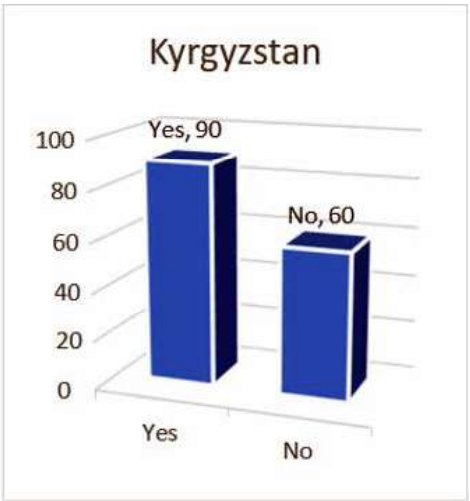




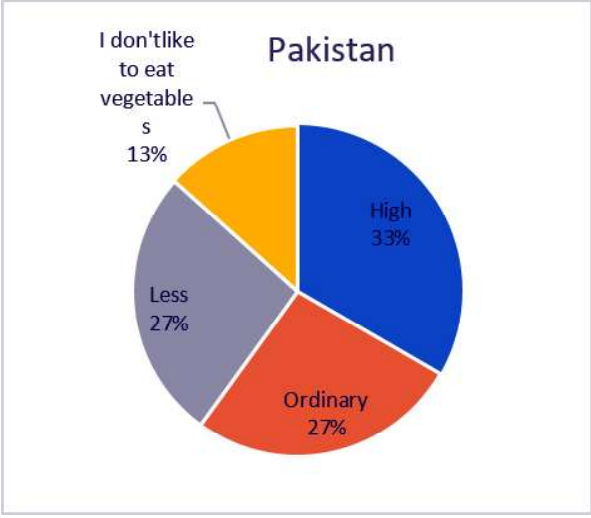
All respondents of Lahore marked answer Yes for storage of water in house and no one marked No.

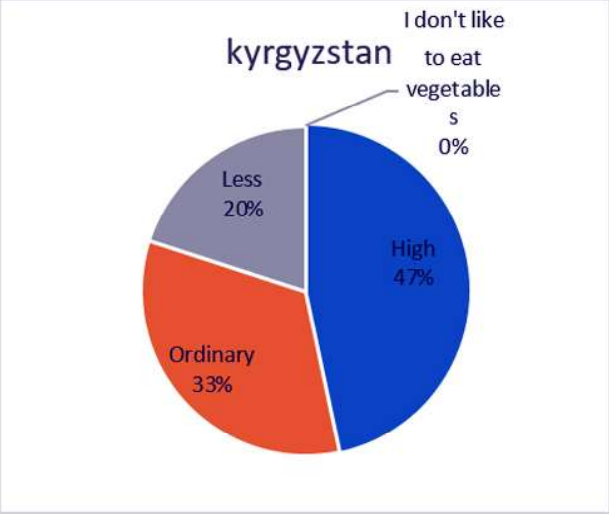
90 respondents of Jalalabad store water at home, in which some may be or maybe not, and in which 60 didn't store water at home.



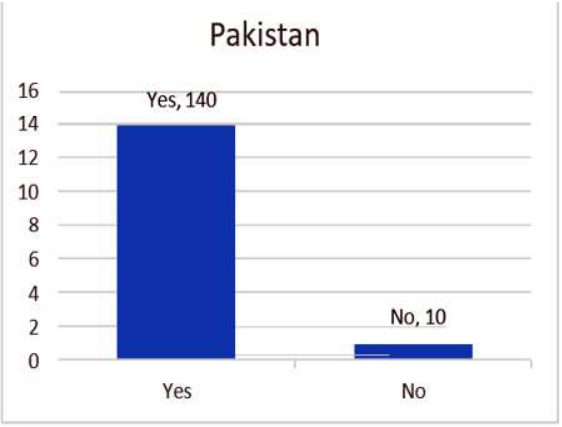


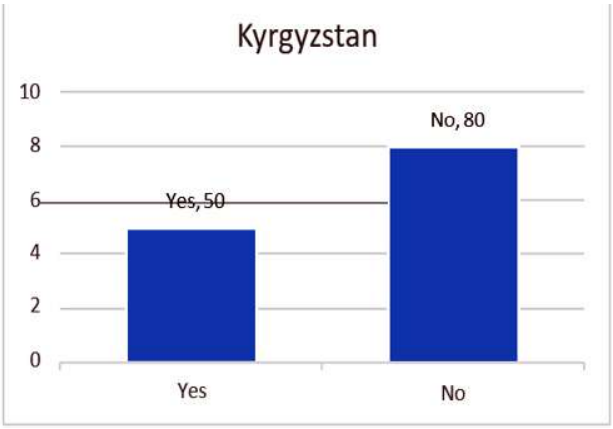
- 13% of Lahore respondents Don't like vegetables to eat, 27 % take less, 27% take normal and 33% take high proportion of vegetables in their diet. Atleast no one mark that they don't like, Jalalabad respondents 20% take less, 33% take ordinary and 47% take high proportion of vegetables in their diet.



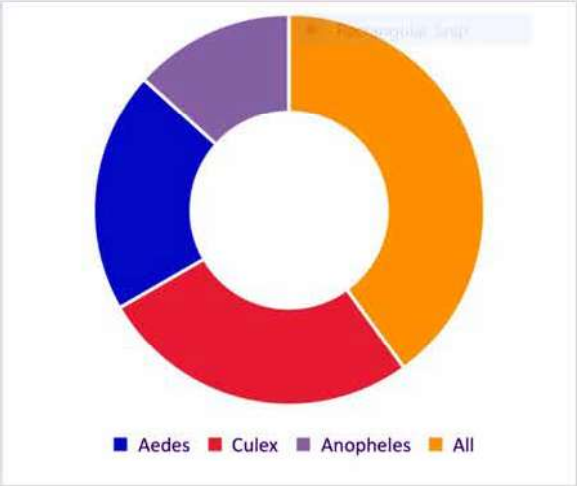


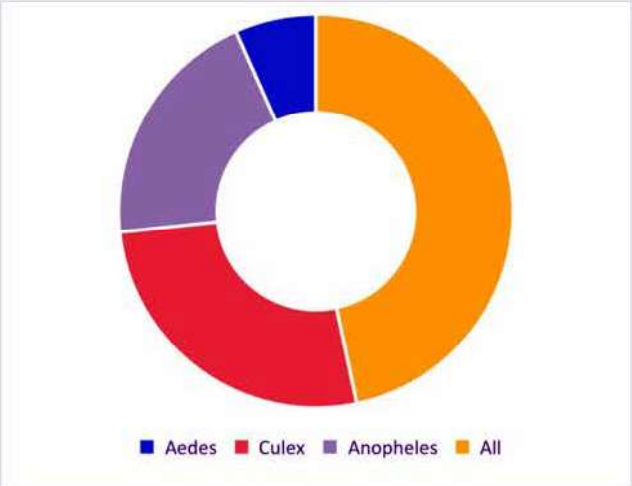
14 respondents from Lahore share their accessories with others but only 1 didn't share their soap, towel, comb etc with others. In Jalalabad 5 respondent share their accessories and 8 didn't share their accessories , that is good thing to stay safe.



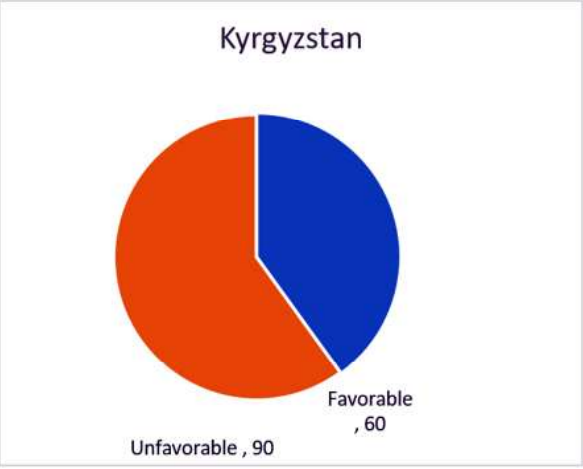


Both Lahore and Jalalabad respondents have not knowledge regarding this question, some give right answer by chance like 20% in Lahore and 7% in Jalalabad.

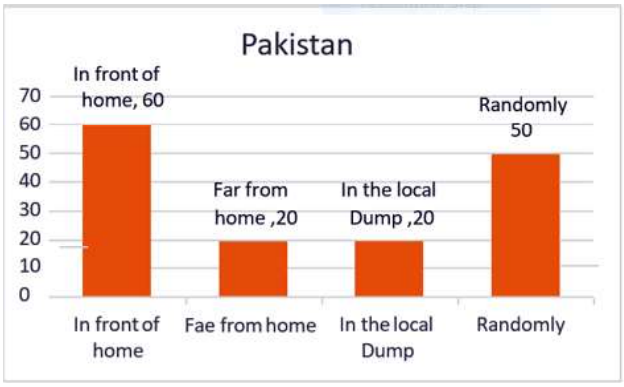


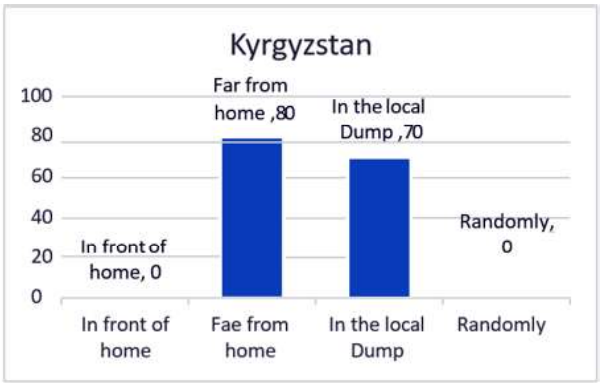


140 Lahore respondents marked yes, that, weather is suitable for mosquitoes' growth and only 10 marked No. Jalalabad respondents marked 60% No and 40% yes, because in whole year mostly there is winters but in month of August there is a lot of mosquitoes at garbage site.

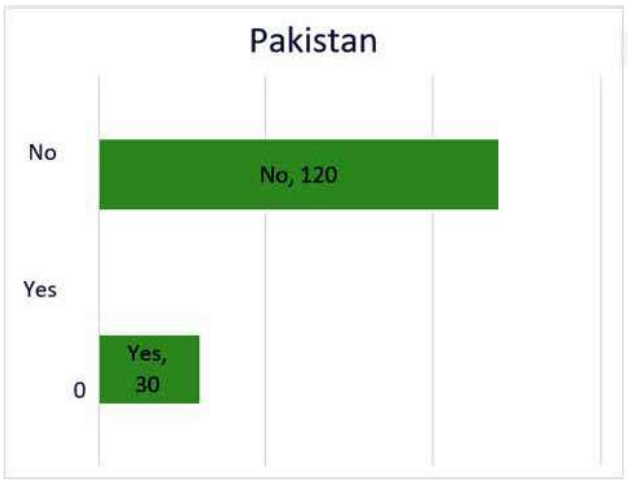


From Lahore respondents, 60 through garbage in front of their homes, 20 far away from home, 20 in local dump and 50 through by chance or randomly. In Jalalabad, No one through in front of their house and no one through randomly. 80 of them through the garbage far away from home and 70 in local dump.

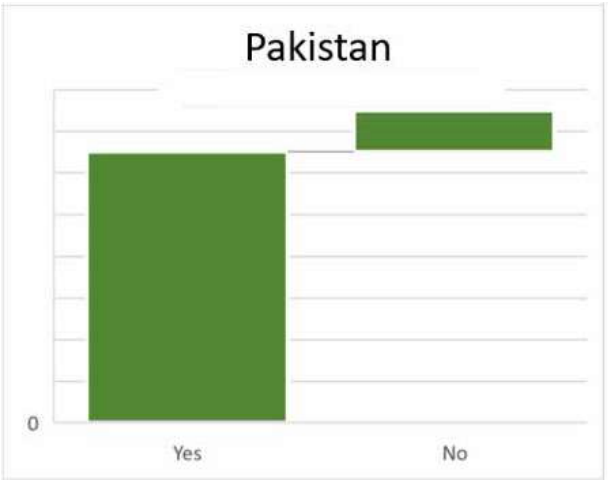


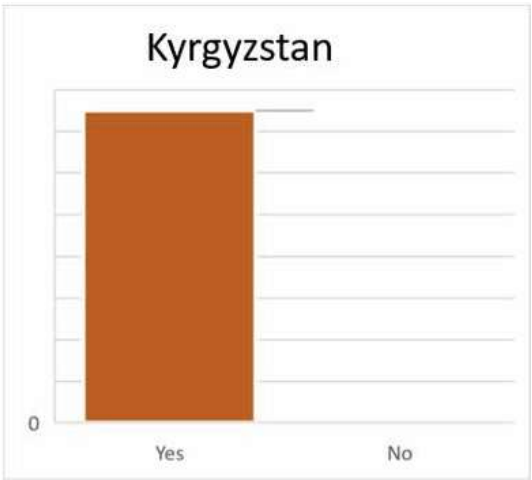


From Lahore respondents, 80% of people don't take calcium and vitamins tablet, and 20% take tablets. From Jalalabad, 53% of people don't take and 47% of people take calcium and vitamins tablets.



In Lahore 13 respondents are not statisfy from their sewerage system of country and 2 are satisfied. In Jalalabad respondents, all are statisfied from the sewerage system of their country.





Discussion

This study aimed to compare the knowledge, awareness, and preventive practices regarding dengue fever between residents of Lahore, Pakistan, a high-risk dengue endemic region and Jalalabad, Kyrgyzstan; where no cases have been officially reported. The findings reveal significant lifestyle-related differences that influence the incidence and risk of dengue infection.

In Lahore, most respondents were aware of dengue fever and recognized its transmission through Aedes mosquitoes [1]. However, despite higher awareness, actual preventive practices were inconsistent. A large number of respondents shared personal accessories, stored stagnant water at home, and reported dissatisfaction with the sewerage system, conditions favourable for mosquito breeding and viral transmission [3]. These findings align with global observations that urban overcrowding, poor sanitation, and unplanned development are major contributors to dengue outbreaks in low- and middle-income countries [2].

In contrast, respondents from Jalalabad displayed minimal knowledge of dengue fever but practiced healthier environmental hygiene, such as avoiding water storage and using window nets [4]. These behaviours may be shaped more by cultural habits and environmental conditions (e.g., a colder climate less conducive to mosquito survival) than by active health education [5]. Importantly, despite the lack of awareness, the preventative lifestyle observed in Jalalabad indirectly aligns with WHO's recommendations for vector control—reducing breeding sites and limiting exposure to mosquitoes [1][6].

Our findings support the hypothesis that lifestyle factors, such as waste disposal, water storage habits, and the use of repellents, play a critical role in the prevention of dengue fever [3][4]. These lifestyle patterns may significantly mitigate the risk of infection, even in the absence of targeted health interventions. Conversely, higher awareness does not always translate into effective prevention if it is not accompanied by practical changes in daily behaviour [4][7].

Moreover, the study reaffirms that dengue prevention is multifactorial. While public knowledge is important, physical infrastructure (e.g., sanitation systems), government vector control programs, and personal hygiene practices collectively determine disease outcomes [1][3]. The disconnect observed between knowledge and practice in Lahore highlights the need for community-based intervention programs that not only educate but also facilitate the adoption of practical preventive measures [3].

Finally, climate change and increased urbanization continue to alter the epidemiology of dengue fever. With global warming expanding the geographical range of Aedes mosquitoes, regions like Jalalabad may become susceptible soon if environmental changes occur [2][8]. Therefore, proactive education and surveillance even in non-endemic regions are essential [2].

Conclusion

This comparative study between Lahore and Jalalabad highlights how lifestyle factors significantly influence the risk of dengue fever, regardless of awareness levels [3][4]. In Lahore, although most respondents were knowledgeable about dengue and its transmission [1], preventive practices were inconsistent and often inadequate [3]. Factors such as poor waste management, stagnant water storage, lack of personal hygiene, and unsatisfactory sewerage systems contributed to an environment conducive to mosquito breeding and disease transmission [3][4]. Conversely, in Jalalabad—despite limited awareness about dengue—residents demonstrated healthier lifestyle habits, such as reduced water storage, better waste

disposal, and use of protective measures like window nets [4]. These practices have likely contributed to the absence of dengue cases in the region [5]. This finding underscores that effective lifestyle behaviours can serve as a strong barrier against dengue, even in the absence of formal health education or endemic risk [4][6].

Overall, the research supports the notion that awareness must be paired with actionable behaviour change [4][7]. Preventive strategies must be practical, community-based, and culturally adapted [3][9]. Dengue prevention is not solely the responsibility of healthcare systems—it also depends on individual and collective commitment to sustainable practices that minimize mosquito breeding and exposure [1][6].

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