

Knowledge, Attitude, and Preventive Practices (KAP) Regarding Dengue Among Urban Residents in Bangladesh

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ABSTRACT: Dengue fever remains a significant health threat in urban Bangladesh, exacerbated by rapid urbanization, poor waste management, and inadequate mosquito control. Knowledge, attitudes, and preventive practices (KAP) play a crucial role in combating this disease. While most urban residents are aware of dengue's symptoms, many lack proper understanding of its transmission, particularly its breeding sites. Attitudes towards prevention often reflect a sense of low personal risk and a lack of trust in government measures, leading to complacency. Despite knowledge of preventive measures like eliminating stagnant water and using mosquito nets, implementation is inconsistent. Socio-demographic factors such as education and income significantly influence KAP. Effective dengue control requires improved public education, community involvement, better access to preventive resources, and stronger waste management. Strengthening the healthcare system's capacity to handle outbreaks is also essential for mitigating dengue's impact in urban areas.

Keywords: Dengue, Knowledge, Attitude, Preventive Practices, Urban Bangladesh.



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***Correspondence:**
Dr. Abul Bashar**How to cite this article:**Bashar A, Hasan MS, Kamal MZ;
Knowledge, Attitude, and Preventive
Practices (KAP) Regarding Dengue
Among Urban Residents in Bangladesh. J
Netr. Med Coll. 2025;2(1): 1-5.**Article history:**

Received: January 16, 2025

Accepted: April 14, 2025

Published: June 30, 2025

Peer Review Process:

The Journal abides by a double-blind peer review process such that the journal does not disclose the identity of the reviewer(s) to the author(s) and does not disclose the identity of the author(s) to the reviewer(s).



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INTRODUCTION

Dengue fever, a viral disease transmitted by *Aedes aegypti* mosquitoes, continues to be a major public health challenge in tropical and subtropical regions.¹ Bangladesh, with its rapidly growing urban populations, inadequate waste management systems, and tropical climate, has become one of the countries with recurrent dengue outbreaks. While there has been increasing awareness about the disease, much of the response relies on the population's knowledge, attitudes, and preventive practices (KAP). The ability of the population to effectively manage and mitigate dengue outbreaks largely depends on these three factors. This editorial explores the existing KAP regarding dengue among urban residents in Bangladesh and offers recommendations for improving dengue prevention.

Understanding the Knowledge of Dengue Among Urban Residents

Knowledge is the first line of defense against any public health threat. In the case of dengue fever, understanding its transmission, symptoms, and prevention measures is essential for reducing the incidence of the disease. Several studies have explored

the level of knowledge about dengue among the urban residents of Bangladesh, revealing both strengths and significant gaps. A survey conducted in Dhaka city found that while most urban residents were familiar with the basic symptoms of dengue, such as fever, pain behind the eyes, and rash, many were misinformed about its transmission mechanisms.² For example, many believed that dengue mosquitoes breed in dirty water, which is a misconception since *Aedes aegypti* mosquitoes prefer clean, stagnant water. This lack of clarity on breeding sites leads to ineffective measures to control mosquito populations, as many residents focus their efforts on areas with visible waste rather than common breeding grounds such as flower pots, old tires, and uncovered water tanks.³

Furthermore, a significant portion of the population still does not associate dengue with the larger environmental issues such as urbanization, improper waste disposal, and climate change. These factors contribute to the favorable breeding conditions for *Aedes* mosquitoes. According to a study by Tan *et al.*, only 20% of the respondents understood the link between environmental factors

and the spread of dengue.⁴ Consequently, a lack of comprehensive knowledge reduces the effectiveness of individual and community efforts to control dengue fever. In contrast, educated urban residents, particularly those with formal schooling or access to healthcare information, tend to exhibit a higher level of awareness about dengue. The same study revealed that individuals with higher education levels were more likely to correctly identify mosquito breeding sites and understand the need for preventive measures, such as eliminating stagnant water and using mosquito repellents.⁵

Attitudes Towards Dengue Prevention and Control

The attitude of urban residents plays a significant role in determining how knowledge is transformed into preventive actions. In Bangladesh, attitudes toward dengue prevention are shaped by a variety of factors, including personal experience with the disease, trust in health authorities, and socio-economic conditions. While a large proportion of urban residents express concern about the potential dangers of dengue, many do not perceive themselves as personally at risk. A study conducted in Dhaka city by Hossain *et al.*, found that although over 70% of the respondents considered dengue a serious disease, only 40% believed they were likely to contract it.⁶ This sense of invulnerability is a common barrier to the adoption of preventive practices. Residents may acknowledge the threat posed by the disease but fail to take appropriate actions because they believe the disease is unlikely to affect them personally. Trust in the local authorities' efforts to control dengue is another significant factor shaping attitudes toward preventive practices. Many residents in urban areas, particularly in slums and low-income neighborhoods, have expressed dissatisfaction with the government's dengue control efforts. According to the study by Rahman *et al.*, respondents who felt that the authorities were not adequately addressing the mosquito population or providing sufficient public health campaigns were less likely to engage in personal preventive measures, such as using insecticide-treated nets or eliminating breeding sites around their homes.⁷ This lack of trust in public health initiatives can lead to a sense of helplessness and a reluctance to take preventive actions. On the other hand, some studies show that a positive relationship between individual attitudes and community-based interventions can lead to better preventive outcomes. Residents who actively participated in local dengue

prevention programs, such as cleaning community spaces and educating neighbors, showed more proactive attitudes towards disease control.⁸ Therefore, fostering a collective sense of responsibility within communities could be an effective way to improve attitudes toward dengue prevention.

Preventive Practices in Urban Bangladesh

Preventive practices are essential to controlling dengue, and urban residents must be proactive in taking measures to reduce mosquito exposure and eliminate breeding grounds. In Bangladesh, while many individuals are aware of the recommended preventive measures, such as using mosquito nets, applying insect repellents, and eliminating stagnant water, the actual implementation of these practices is often insufficient. A survey by Romanello *et al.*, found that while 85% of urban residents reported being aware of the need to eliminate mosquito breeding sites around their homes, only 45% regularly took action to do so.⁹ Common practices to reduce mosquito populations include removing old containers, covering water storage tanks, and regularly cleaning gutters. However, a significant number of households failed to implement these actions consistently, citing a lack of time, resources, or motivation. Moreover, in many densely populated urban areas, there is simply not enough space for everyone to engage in effective mosquito control, making it more challenging to eliminate breeding sites. Another common preventive practice is the use of mosquito nets, which is particularly important during peak mosquito activity times, such as dawn and dusk. However, a survey conducted by Nguyen *et al.*, found that only 25% of urban households in Dhaka regularly used mosquito nets.¹⁰ While this is a common recommendation from health authorities, it is often not followed due to cost constraints and a lack of awareness about their effectiveness in preventing mosquito bites. Some urban residents also opt for other methods, such as using electric insect repellents, though these are less cost-effective and have limited reach in large populations.¹¹ In addition to individual practices, urban communities must address larger environmental issues, such as inadequate waste management and the improper disposal of plastic containers and other waste materials, which provide ideal breeding grounds for mosquitoes. Urban areas with inefficient waste disposal systems are at a higher risk of dengue outbreaks due to the abundance of

stagnant water in discarded containers. However, this is a systemic problem that requires coordinated efforts from both the government and communities to address.

Socio-Demographic Factors Influencing KAP

Socio-demographic factors such as age, gender, education level, and income significantly influence the KAP regarding dengue among urban residents in Bangladesh. Studies have shown that women, especially mothers and caregivers, tend to exhibit more favorable knowledge and attitudes towards dengue prevention. This could be due to their role in maintaining household cleanliness and caring for family members, which increases their awareness of the disease and its risks.¹² Age also plays a role in KAP, with younger individuals more likely to be aware of dengue and its prevention. This is partly because younger generations are more exposed to media and public health campaigns through digital platforms, such as social media, compared to older generations who may not be as tech-savvy. As a result, younger urban residents tend to have more up-to-date knowledge of the disease and are more likely to adopt preventive behaviors.¹³ Income and education are also closely related to KAP. Residents with higher education levels and higher incomes are more likely to possess accurate knowledge about dengue and adopt preventive practices. This group is more likely to have access to preventive resources, such as mosquito nets and insecticides, and may be more engaged in community-based interventions.¹⁴ In contrast, individuals with lower income levels may lack the financial resources to purchase mosquito control products and may not have access to information about the disease.

Challenges in Controlling Dengue in Urban Bangladesh

Despite the growing awareness about dengue fever, controlling its spread in urban areas remains a daunting challenge. Rapid urbanization, inadequate infrastructure, poor waste management, and climate change all contribute to the increased risk of dengue outbreaks in cities like Dhaka. Urban environments in Bangladesh, particularly informal settlements and slums, are often overcrowded, with limited access to basic sanitation facilities. This makes it difficult for residents to maintain cleanliness and eliminate mosquito breeding sites. Additionally, the city's poor waste disposal system further exacerbates the

problem, as discarded containers and stagnant water provide ideal breeding grounds for *Aedes* mosquitoes. Furthermore, the healthcare system in Bangladesh is often overwhelmed during dengue outbreaks, with hospitals and clinics unable to handle the surge in patients. This leads to delays in diagnosis and treatment, contributing to the high mortality rate in severe cases of dengue. Lack of coordination between public health authorities and healthcare providers also hampers the effectiveness of response measures.

Recommendations for Improving KAP Regarding Dengue in Urban Bangladesh

To effectively reduce the impact of dengue fever in urban Bangladesh, improving the Knowledge, Attitude, and Preventive Practices (KAP) of residents is crucial. Public education campaigns should utilize diverse communication channels, such as television, social media, and community outreach, ensuring clear and accessible information for all. Engaging communities in identifying and eliminating mosquito breeding sites enhances the adoption of preventive measures. Access to affordable resources like insecticides and mosquito nets should be improved, especially in low-income areas, through collaborations with NGOs and local businesses. Strengthening waste management systems and bolstering healthcare capacity to handle outbreaks are essential to controlling dengue's spread.

CONCLUSION

Dengue fever continues to pose a serious public health threat in urban areas of Bangladesh. While urban residents possess a general understanding of the disease, knowledge gaps, ineffective preventive practices, and socio-demographic factors contribute to the persistence of dengue outbreaks. Addressing these challenges requires a comprehensive approach that includes education, community engagement, improved access to resources, and better infrastructure. By enhancing KAP and adopting more effective control measures, Bangladesh can mitigate the impact of dengue and safeguard the health of its urban populations.

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