The emergence of lightning as a natural disaster in Bangladesh and its impact on household dynamics

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Abstract

Lightning in recent years has become a disaster of great concern for Bangladesh due to increasing fatality, especially during pre-monsoon and monsoon seasons. This study addresses the socio-economic impact of lightning fatalities on the victims' households and delves into lightning myths, superstitions, and misconceptions. We interviewed (N=15) the households affected by lightning fatalities from 2015 to 2019 in Mymensingh, one of the worst lightning-affected districts of Bangladesh. Among the studied households (HHs), all except one were in rural areas, and almost all fatalities were male. Victims mainly were engaged in outdoor activities like farming and fishing during the lightning events. Due to the death of their primary wage earner, two-thirds of the HHs were in severe economic crisis. Children's drop out of school and early marriage of girl children were also observed due to the death of the breadwinner from lightning. We recommend a mass awareness program to change the indifferent attitude and misconceptions about lightning disasters along with introducing a suitable early warning and warning dissemination system to reduce future fatality. We also recommend increasing monetary and other support for the victim's family.

1 Introduction

Lightning is one of the major causes of worldwide weather-related fatalities. Lightning affects the low and middle-income nations of tropical and subtropical regions most. With the increasing population, climate change, and deforestation, the fatalities caused by lightning have increased (Jayaratne and Gomes 2012; Islam 2016; Holle et al. 2018). In recent years, Lightning casualties have emerged as one of the most dangerous life-threatening disasters in Bangladesh. In addition to the loss of life and health, the economic damage caused by lightning is enormous, diverse, and widely spread across the communities. They affect many people, from house owners and small and medium businesses to large national and multinational corporate businesses such as oil refineries and national heritage sites (Cooper and Holle 2019). Many domestic animals also die from lightning strikes leading to a loss of income sources for families in rural areas (Farukh et al. 2017).

Most of the people affected by lightning in developing countries are ignorant about lightning safety and have very little knowledge regarding fundamental first-aid principles (Gomes and Kithil 2006). Illiteracy, knowledge gap, religious orthodoxy, and assuming lightning as an ordinary phenomenon were the main reasons for inadequate lightning safety knowledge in Bangladesh (Rana 2019). Many myths about lightning death are also deep-rooted in developing countries, mainly rural areas. In Africa, a family affected by lightning injury is believed to be cursed. Due to these superstitious dogmas, neighbors may force the family to leave their community and jobs, which leads to a new start in a new community with further uncertainty (Mulder et al. 2012). In many rural areas, victims and families are often being suppressed for lightning-related death or injury. Their neighbors and relatives often blame the victims and their households that they get the result of their sin (Cooper and Emerita 2012). Rural people of Bangladesh tend to think of lightning as oppression of God and believe that lightning occurs due to the misdeeds of people (Jayaratne and Gomes 2012).

Bangladesh is in the tropical region where 78% of global lightning occurs (Christian et al. 2003; Dewan et al. 2017). In this South-Asian monsoon country, thunderstorms accompanied by severe lightning are one of the main reasons for human casualties. Especially the thunderstorms that occur every year from late March to

May result in the most lightning-related fatality (Midya et al. 2018). In the Indian subcontinent, maximum lightning occurs in the states of Meghalaya, West Bengal, Assam, and central Bangladesh during the pre-monsoon season (March to May) (Ranalkar and Chaudhari 2009). Bangladesh has the highest lightning death among all South Asian Association for Regional Cooperation (SAARC) countries. United States National Lightning Safety Institute reports that one-fourth of global lightning deaths occur in Bangladesh every year (Farukh et al. 2017). From 2010-to 2017, 211 people were injured annually, and lightning claimed 260 lives in Bangladesh, more than double the estimate of 106 annual deaths from 2000-to 2009 (Holle et al. 2018).

Considering the massive death toll and injuries caused by lightning and related events, in 2016, the Government of Bangladesh included lightning in the official disaster list that previously included floods, cyclones and storm surges, earthquakes, drought, and river erosion (Biswas et al. 2016; NPDM 2016; VoA News 2016). However, the country lacks a proper lightning database on casualty and economic loss. It also lacks lightning-safe dwellings and adequate safety, early warning system, and awareness schemes. Several pieces of research have been carried out on lightning and its cause and effect in Bangladesh. So far, the studies mainly concentrated on spatial and temporal vulnerability and demographic distribution of lightning fatality, the reason for an increase in lightning-related fatalities in Bangladesh (Chowdhury 1995; Biswas et al. 2016; Dewan et al. 2017; Farukh et al. 2017; Holle et al. 2018; Rahman 2019). Nevertheless, there remains a gap in research on the short-term and long-term socioeconomic impact of lightning and the coping mechanisms at the household level. Though the Bangladesh government declared lightning a disaster in 2016, there is a lack of thorough studies on this disaster and how it is affecting the population of the country. The proposed research focused on these poorly addressed issues. It aims to evaluate the socioeconomic condition and changes in households suffering from lightning fatalities. We studied how the incidents influenced the life and livelihood, lightning safety knowledge, coping strategies, and perception of lightning as a hazard. Additionally, the study looked into government, and community support provided to the lightning affected household in the Mymensingh district of Bangladesh.

2 Materials & Methods

Our study on the impact of lightning fatalities on households is based on the grounded theory approach, which enables understanding of the phenomena based on data collection and analysis (Mason 2002). Since the impact of lightning fatalities in Bangladesh is an underexplored topic, the grounded theory approach helped to understand the importance of prioritizing lightning as a natural disaster and bringing it to the focus of policymakers to help the lightning victims and their households further. Theoretical sampling has been used for this study. We selected the families where at least one member died from a lightning strike or related incidents during 2015–2019. Depending on this criterion, a total of twenty-two households were found with lightning fatalities from various newspapers and national disaster reports. We have done an intensive literature review before the primary data collection.

Primary data has been collected from the site visit, observation, and in-depth interviews. Data related to the structure of the houses, living conditions and earthing has been collected through site visits and direct observation of the sample households. We have taken the interviewees' consent and addressed all other ethical considerations during data collection. In-depth interviews were conducted in fifteen families based on the availability and accessibility of interviewees with a semi-structured questionnaire among the twenty-two

households. After conducting in-depth interviews with fifteen households, we observed that the collected information reached saturation point (Faulkner and Trotter 2017). The respondents mainly included the victims' spouses (widow/widower). This qualitative research applied the thematic method for data analysis. The interview scripts were used for this purpose (Mason 2002). The indicators for this study were income, education, health care, occupation, and awareness.

Study area

The Mymensingh District (Fig. 1) selected for this study is one of the largest districts of Bangladesh. The total area of Mymensingh is 4,364 km². It is located between 24°15' and 25°12' N and between 90°04' and 90°49' E (BBS 2011). Farukh et al. (2017) found Mymensingh to be in the 3rd position among the districts of Bangladesh in terms of vulnerability to lightning hazards. Mymensingh is a district with many big paddy-growing fields and water bodies. About 59.5% of holdings in this area are farms, where most of the rural population work as farmers (BBS 2011). People, primarily workers in the rice field and fish farms are hit by lightning in this district every year. The prevalence of farming-related activities in open fields and water bodies can be attributed to the high number of lightning-caused fatalities in the study area.

3 Results And Discussion

3.1 Demography of the victims

A total of fifteen households affected by lightning fatalities were included in the present study. Table 1 summarizes the information on the victims of lightning fatalities from sampled households.

Table 1
The demography of the victims from the sampled households

HH ID	The victim	Age	Sex	Marital status	Education	Occupation	Background of death
01	Household head	42	Male	Married	Could write name only	Farmer (Main wage earner)	Got struck by lightning while returning home after working in the field during a thunderstorm
02	Household head	52	Male	Married	Could write name only	Farmer (Partial wage earner)	Got struck by lightning during a nor 'wester while feeding his cow
03	Household head	45	Male	Married	Studied till class V (Primary)	Farmer (Main wage earner)	Got struck by lightning while feeding his cow during a thunderstorm
04	Elder son	18	Male	Unmarried	Studied in *madrasa* - class V	Day laborer (No economic contribution)	Got struck by lightning while feeding the ducks in a nearby pond after the thunderstorm was over
05	Household head	40	Male	Married	Illiterate	Farmer (Main wage earner)	Got struck by lightning while harvesting the crop in the field during a storm
06	Household head	29	Male	Married	Could write name only	Day laborer (Main wage earner)	Got struck by lightning while working on the riverside during a storm
07	Son	14	Male	Unmarried	Student of class IX	Student (Not economically active)	Got struck by lightning while playing football on the field during nor 'wester
08	Household head	67	Male	Married	Illiterate	Used to stay at home and help with household chores (Not economically active)	Went out to fetch their cow from a nearby field and got struck by lightning on the way back
09	Household head	30	Male	Unmarried	B.A. pass	Worked in court (Main wage earner)	Chatting with friends alongside a road during a storm when thunder struck & fatally injured him

HH ID	The victim	Age	Sex	Marital status	Education	Occupation	Background of death
10	Household head	60	Male	Married	Illiterate	Farmer (Partial wage earner)	Got struck by lightning while working in the field during a storm
11	Household head	45	Male	Married	Illiterate	Fisherman (Main wage earner)	Got struck by lightning while catching fish in the wetland during a heavy storm
12	Son	25	Male	Married	Could write name only	Fisherman (Partial wage earner)	catching fish in the nearby floodplain when lightning struck, and the victim fell and drowned in the pond
13	Wife	37	Female	Married	Studied till class V	Housewife used to rear poultry and cattle (Partial wage earner)	Got struck by lightning while returning home from the field after feeding the cow during a storm
14	Household head	58	Male	Married	Illiterate	Farmer (Partial wage earner)	Got struck by lightning while harvesting crops in the field during nor ‘wester
15	Wife	35	Female	Married	Illiterate	Housewife (Partial wage earner)	Harvesting crops with husband in the field when a thunderstorm started, and a lightning killed victim

3.2 Temporal distribution of lightning fatalities in the sample households

Among the fatalities that had been observed in the sample households, eleven (nearly three fourth) occurred during the pre-monsoon (March-May) season and four (nearly one-fourth) during the monsoon (June-September) season. The seasonal distribution of lightning fatalities under the study coincides with the findings of Dewan et al. (2017), Holle et al. (2018), and Islam (2018) which show the dominance of lightning fatalities in the pre-monsoon season followed by monsoon and post-monsoon season. The high fatality rate during pre-monsoon can be attributed to the intensive outdoor agricultural activity mainly by the paddy farmers in this period. It is the harvesting period of boro rice, and the pre-monsoon is categorized by intense, incoming solar radiation, responsible for thunderstorms, including very frequent Nor'wester (Chowdhury and De 1995). Two-thirds (ten) of the lightning fatalities in our study occurred during Nor'wester, followed by a thunderstorm (three or one fifth) and two during drizzling. The highest frequency of intense lightning followed

by thunderstorms was also observed by Midya et al. (2018) in their study in the Indian state of West Bengal, one of the five bordering states of Bangladesh.

The time distribution of the fatalities shows dominance of daytime events. Maximum victims (eight) died during the afternoon, followed by morning (six), with the least lightning fatalities occurring in the evening (one). This daytime peak can be explained as heating the land surface during the day due to strong sunshine results in vertical uncertainty leading to lightning-producing convection (Yamane et al. 2010; Holle and Cooper 2016). Nearly half of the lightning occurred between mid-day and 6.00 pm in Bangladesh (Biswas et al 2016). In the country, the high fatality rate in the daytime, especially in the morning and noon, may also be attributed to the much higher intensity of various outdoor and field activities during the day. Most of the victims who died during the daytime were engaged in agricultural, livestock grazing, and fishing activities.

3.3 Demographic distributions of lightning-related fatalities

3.3.1 Gender and age distribution of lightning fatalities in surveyed households

Almost all fatalities were male in the surveyed households except two. This result also corresponded to previous studies where gender-based lightning fatality analysis was done. Raga et al. 2014 and Holle et al. 2018 found that, unlike other disasters, the fatality rate in the case of lightning was higher for males than females. The gender difference in fatality rate can again be attributed to the socioeconomic structure of the study area, as well as for the whole country where the male population in rural areas work in the fields compared to the rural female population who mostly stay at home for household chores. Dewan et al. (2017) also observed that most deaths caused by lightning occurred to men as farming was the primary activity at the time of lightning fatalities, followed by coming back home or wandering around homesteads.

As for the age distribution, the lightning fatality was the highest in adults (age 19–50 years), followed by the elderly age group and children. The high fatality rate for adults in the study area is credited to the fact that the population of this range actively works outdoors, especially in rural areas. The male population of this age is active mainly in farming, livestock rearing, and fishing activities. The two female victims of this age group were also working outside during the incidents. Biswas et al. (2016) and Dewan et al. (2017) observed a high incidence of injuries in adult people and more frequent in men than women in all age groups.

3.3.2 Rural vulnerability to lightning

Among the victims, all but one lived in rural areas. The urban victim was a 15-year-old male who died from a lightning strike while playing football on the field during a thunderstorm. Rural people are more vulnerable to lightning than urban people. In the study area, generally, most urban people work inside lightning-safe structures. On the other hand, most rural people work outdoor in open areas, which increases their vulnerability to lightning. Some earlier studies also reported that most lightning fatalities in developing countries like Bangladesh occurred in rural areas (Zhang et al. 2011; Gomes and Kadir 2011; Cardoso et al. 2014; Holle 2016; Dewan et al. 2017). Biswas et al. (2016) observed 8.73 times higher risk of getting struck by lightning in rural populations than in urban populations. The reasons behind high mortality due to lightning in rural areas include labor-intensive daytime agriculture field activities (Holle 2016), non-existent lightning

protection in the different building structures (Holle and Cooper 2016), a lack of readily available fully enclosed metal-topped shelters, and ignorance of the danger from lightning (Gomes and Kadir 2011; Raga et al. 2014). In recent years, lightning fatalities in Bangladesh often involve unaware farmers using farming equipment made of metal in open crop fields and people standing close to the metal cell phone towers or electricity pylons during thunderstorms and lightning (Islam 2016). Rana (2019) observed a low literacy rate, lack of adequate knowledge, religious orthodoxy, and thinking of lightning as an ordinary phenomenon as the main reasons behind the rising lightning fatalities in Bangladesh.

3.3.3 Professions of the victims and their activities during the attack

According to Holle et al. (2019), farming accounts for more than half of lightning fatalities. Most of the victims in our study were farmers, working mainly on the farmland during the lightning events. All the victims were found to be outside of their homes during the lightning – either working, going somewhere, or coming back home. Victims also included one housewife returning home after helping her husband in cropland and bringing back their cattle from a nearby grazing field. An older person died while bringing the cattle from the field. Another person died while chatting with his friends during a nor ‘wester on a roadside tea stall. Overall, farmers (six out of fifteen) were the primary victims of lightning fatalities.

3.4 Economic impact on the households

Lightning victims were the primary wage earner in more than half of the victims' sampled households. Nearly one-fourth were secondary wage earners who partially contributed to their households, and some of the victims were not involved in any activities. More than two-thirds of the HHs were found to be distressed from the death of their primary wage earner with significant impacts on food, health, and education of children. The intensity of the economic impact on the household corresponds with the victims' financial position. The economic impact was severe where victims were the family's breadwinners. The households had a tough time after the victim's death and had to depend on charity from their neighbors and relatives. Nearly half of the sampled households had to borrow money mainly to buy food and other essential consumables. Some were ultra-poor, and they could not borrow money because nobody wanted to lend them money.

3.4.1 Impact on food and healthcare

For a few days to a few months, all the impacted households had to cope with a decline in food and nutrition intake right after the victim’s death. Some families were fortunate enough to receive food items sent by their neighbors or relatives only for days after the victim’s death. Several HHs had to strictly ration their food intake for months after the victim’s death. A substantial decrease in protein intake (fish, meat and eggs) was widespread among these households. The impact on healthcare was severe in the HHs that had one or more members needing medical treatment for chronic disease.

3.4.2 Impact on women, children, and their education

In rural areas, male family members are the primary wage earner in most cases. Female members are involved in household work. Some contribute to the family by rearing livestock or by crafting. When the primary wage earner of a household died or gets injured because of a disaster, in many cases, women

become the primary wage earners (Rezwana 2021). Eleven or nearly three-fourths of the women of the affected households in our study had to start working after the victim's death to ensure food, education, and basic amenities for the family. Some started working in garments or knitting factories, others worked as maids in the houses of rich people, and a few worked from homes (involved in agriculture, livestock rearing, and crafting).

Post-disaster periods have strongly biased impacts on children of the affected family, especially girls. They are often deprived of education and healthcare and sometimes are married off at an early age (Akter et al. 2019). In the present study, two children were married off early due to their father's death from lightning. The underage marriages were arranged after a few months of the victim's death as it was difficult for the households to bear their educational expenses. Also, they felt safe marrying off their daughters early (Goulds 2013). At the time of marriage, they were younger than the allowable wedding age limit for girls – which is eighteen in Bangladesh by law. Overall, the impact on education was more visible on girls than the boys. They faced hardship in accessing food, health care, child education, paying for debt bondage, and could not fulfill the basic needs due to limited monetary access (Gomes et al. 2006).

In this study, the impact on children was measured based on their continuity of education after the victim's death. Due to poverty which can be exacerbated by the victims' death, the adverse outcomes of disaster on schooling can be persistent (Sawada and Takasaki 2017). Duechert and Felfe (2015) found a negative shift in parental contribution towards their children's education to cope with the economic damages caused by natural disasters. The study observed a similar impact on children's education regarding the parents' financial investment after the death of the household head or important household members. Their deaths created a vacuum resulting in a substantial decrease in income for the family. We found that seven children were dropped out of school permanently to support their families. Three children took a temporary break from education to take care of household chores or earn money to help the family. In one HH where the victim was female, the daughter had to stop going to school to take care of household chores and work part-time in others' houses.

3.5 People's Perception of the increase in lightning fatalities

All the interviewed respondents claimed that lightning fatalities increased in recent years. An increase in population and an increase in lightening reporting by mainstream and social media as cellular phone use is increased is identified as the causes of increased lightning-related death (Holle et al., 2018). People in the study area believe in an unusual theory as one of the reasons for the increase in lightning fatalities. Two-thirds of the households interviewed referred to the *"Disappearing Pillar Theory"* as one of the main reasons for the increase in lightning fatalities. The interviewees alleged that during the British rule (ended in 1947) in the Indian sub-continent, the government placed some underground pillars that were useful for lightning protection. These pillars were made of high-quality iron and other expensive metals. However, around 20–30 years ago, some greedy people started digging out these pillars and selling them to local and overseas collectors in black markets. Due to the stealing of these pillars, lightning fatality all over the country increased. However, the legitimacy of this theory could not be verified from any reliable source despite it being popular in the study area as one of the main reasons for rising lightning fatalities. This needs to be adequately investigated by the government. Researchers should examine whether such pillars could have

been used as earthing rods to conduct the impact of lightning. The other common myths and superstitions regarding lightning fatalities believed by the respondents were -lightning as God's will and God's curse. Accordingly, many of the respondents thought that no measures could prevent a lightning fatality.

The bones and skeleton of the lightning victim are believed to be unique in rural areas of Bangladesh. Many also believe that the bones inside the corps eventually – become a magnet and are helpful for black magic, so magicians collect the body at a high price from the skeleton thieves. This superstition has a far-reaching consequence. Due to this, all the victims' households feared that the body would get stolen if not appropriately guarded, as it often happened in the past in different parts of the country, including in the study area (BBC, 2018). All the sampled households buried the victim close to their homesteads. They guarded the grave till the grave was unnoticeable or, in some cases, families, and relatives reinforced the grave using concrete and iron bars (Fig. 2.). This added further economic burden and mental stress to the victim's family.

Many respondents also firmly believe that death of a person by lightning strike is according to God's will irrespective of awareness and safety measures. Rural people of Bangladesh tend to think of lightning as oppression of God and believe that lightning occurs due to the evil deed of people (Jayaratne and Gomes 2012). Mawla et al. (2020) also observed many myths and misconceptions. The rural people believed that lightning kills only the sinners. It is the will of God, and lightning never strikes the same place twice, lightning victims are dangerous to touch, and so on.

3.6 Response and Attitude of government and others towards affected HHs

The government of Bangladesh included lightning in the official list of disasters in 2016. In line with this, the authority has been compensating the lightning victims (injured) and the families of the dead ones with BDT 7,500 and 25,000, respectively (USD 1 = BDT 85). Only half of the victim's HHs in this study received full compensation. They received the compensation money from UNO (Upazila Nirbahi Officer or Sub-district Executive Officer). In addition, one-fourth of the families of lightning victims received only partial compensation because of the corruption in the system and misconduct by the people involved in the distribution of compensation. Even worse, some HHs had not received any compensation, even though they tried hard for it. The HHs stated that they were too poor and powerless to claim compensation. On the other hand, a few HHs did not know anything about the compensation for the lightning victims.

In many developing and least developed countries, lightning victims and their families are considered cursed, and as a result, the victim's family is shunned away (Cooper et al. 2019). In the study area, most of the households of lightning victims were not commonly believed to be cursed or shunned by neighbors and relatives. Most of the households did not face any discriminatory action from their neighbors. Instead, they found them supportive and helpful. Still, two households were assumed by their neighbors and relatives as cursed and were shunned away for months. In one case, the villagers disliked a victim. Therefore, when he died by lightning, villagers believed that his lightning death was due to God's curse for his evil-doing and misconduct with the neighbors over the years. The household did not receive any economic assistance or support from the neighbors.

The literacy rate in the surveyed area was about 39.1% (male 41.7% and female 36.3%), and people had a strong belief in religion. They believe in myths and superstitions as well. As a result, they largely lack safety measures and awareness of lightning disasters. Although the fatalities increased due to lightning in this area, residents are still indifferent. They lack understanding of the safety measures for avoiding lightning damage. When we asked the victim's family whether they still go out during a thunderstorm, most of them replied affirmatively. They said that they have to go outside, if necessary, even during a thunderstorm due to their agriculture-related occupations. The "risk-taking attitude" among the male household members is very evident. The present study found no change in awareness among the victim's households even though one of their family members died from the lightning strike. None of the respondents knew basic lightning safety measures like the 30–30 rule, close to ground rule, or even earthing system (Islam and Schmidlin 2020; CDC 2021). Open fields and water bodies are highly susceptible to lightning strikes. Most of the victims of sampled households died from lightning strikes in the open fields, water bodies, or on roads by these fields. Open fields with the water for cultivation (as water acts as a conductor) made people more vulnerable to fatality from lightning.

Our study found that the lightning-related fatalities are the highest in the pre-monsoon season, followed by the monsoon and post-monsoon season. The highest number died in the daytime. Thirteen out of fifteen victims were male. Fourteen out of fifteen victims were from rural areas and involve in agricultural activities while they got stuck by lightning. Therefore, outdoor agriculture activity during the lightning season was the main reason for the lightening related fatality. We also found that people still lack lightening safety-related awareness. Despite the high lightning fatality rate in the study area, neither the government nor any NGO promotes lightning safety awareness. Lack of awareness can be overcome if the government and NGOs start working on lightening disaster awareness by promoting lightning safety knowledge.

4 Conclusion

In our study, in most cases, the victim was the only wage-earner of the family. Beyond the mental trauma, victims’ families suffer in accessing food, health care, and education. The children suffer most due to such deaths. They drop out of school and join work to support the family. Female children are married off at an early age to reduce the family's economic burden. Victims’ families received some compensation from the government. It is an excellent initiative that the Government of Bangladesh recognized lightning as a disaster and allocated funds for the victim's families. Still, the amount of payment is not sufficient for the survival of the victim's family. Moreover, in some cases, they face hassle to get this compensation money. The amount of compensation must be increased as it is not enough to support the victims’ households so that they can lead a proper life post these traumatic events. It must be ensured that the victim's family receives monetary and other basic support without any disturbance. They must be taken under social safety net that provides them monthly help from the government with money, access to free education, and health care facilities. Then the children of the victim's family can continue their education. Early marriage of the girl children due to lightning fatalities also can be avoided. The government of Bangladesh is considering building 1000 lightning-resistant concrete shelters in 23 lightning-prone districts (UNB, 2021). Without an adequate lighting early warning system and awareness program, it will be hard to avoid lightning-related fatalities. Vulnerable people must receive early warning messages via suitable media, including understandable mobile SMS, miking, or tv news.

The proper feasibility study on shelter and early warning dissemination must be done to reduce lightning-related fatalities.

Statements & Declarations

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Compliance with Ethical Standards: We have taken all interviewees' consent *ie.,* informed consent was obtained from each participant from whom information is included in this article and addressed all other ethical considerations during data collection.

Author contributions: All authors contributed to the study conception and design. *Sabrina Akther* carried out the field activities, analyzed the data and prepared the draft manuscript. Nahid Rezwana assisted in data analyses, read and approved the final manuscript. Md. Marufur Rahman reviewed the manuscript.

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Figures

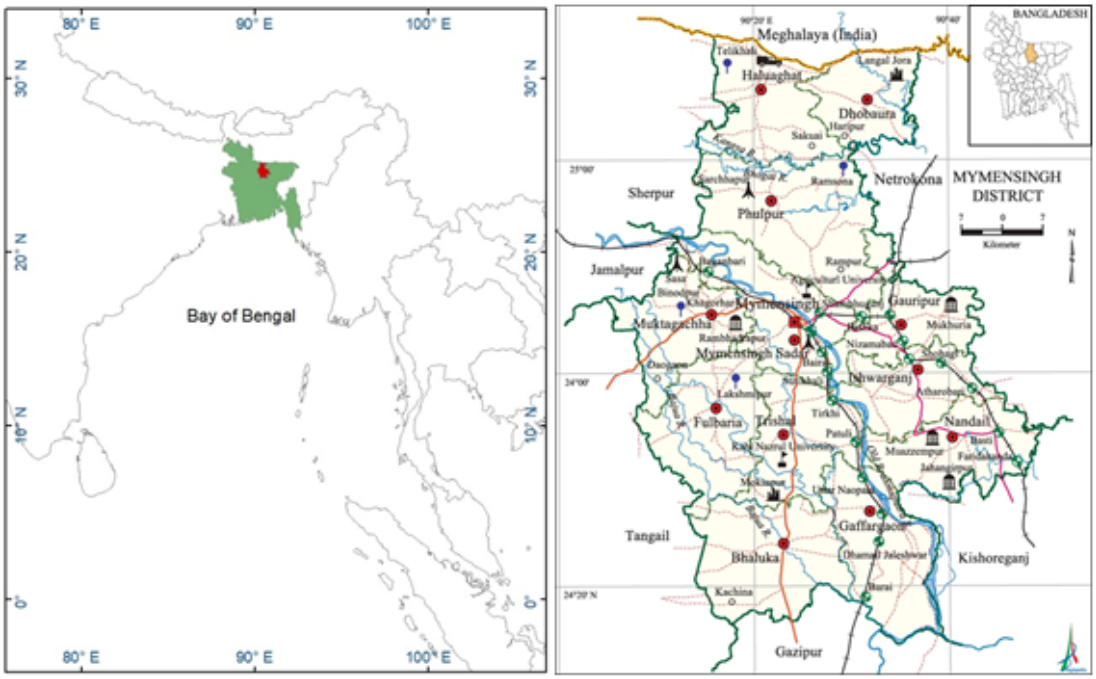

Figure 1

Location and Map of Study Area (Banglapedia, 2021)

a. b.

Figure 2

The grave of a victim protected by concrete and iron bars (a) and covered by a concrete slab (b).